

164491 K2

**ALLIED PAPER, INC./PORTAGE CREEK/
KALAMAZOO RIVER SUPERFUND SITE**

**REMEDIAL INVESTIGATION/
FEASIBILITY STUDY**

TECHNICAL MEMORANDUM 10

**SEDIMENT CHARACTERIZATION AND
GEOSTATISTICAL PILOT STUDY
VOLUME II OF IV**

**ALLIED PAPER, INC./PORTAGE CREEK/KALAMAZOO RIVER
SUPERFUND SITE
KALAMAZOO, MICHIGAN**

February 2002

APPENDIX A

Summary of Sediment Characterization Field Observations

ALLIED PAPER, INC./PORTAGE CREEK/KALAMAZOO RIVER SUPERFUND SITE
TECHNICAL MEMORANDUM 10
SUMMARY OF SEDIMENT CHARACTERISATION FIELD OBSERVATIONS

TRANSECT: KPT1		Date Collected: 08/09/93		River Width (ft): 214.0		Distance to Right Edge of Water (ft): 12		
Distance From Right Bank (ft)	Water Depth (ft)	Water Velocity (fps)	Sediment Depth (ft)	Sediment Penetrated (ft)	Sediment Recovered (ft)	Sediment Type	Interval (ft)	Description
15	1.0	0.60	3.00	2.70	2.20	FINE	0-0.33	LIGHT BROWN AND GREY-BROWN FINE SAND
							0.00-0.50	FINE LIGHT BROWN SAND
							0.50-2.20	LIGHT BROWN AND GREY-BROWN MEDIUM TO COARSE SAND
44	1.7	1.70	3.00	2.70	2.40	COARSE	0-0.33	LIGHT BROWN MEDIUM TO COARSE SAND AND GRAVEL
							0.00-2.40	MEDIUM TO COARSE SAND AND GRAVEL, LIGET BROWN
75	2.6	2.00	3.60	3.60	2.70	COARSE	0-0.33	LIGET BROWN FINE TO COARSE SAND AND GRAVEL
							0.00-0.33	LIGHT BROWN MEDIUM TO COARSE SAND AND GRAVEL
							0.33-1.80	GREY-BROWN AND TAN FINE TO MEDIUM SAND
							1.80-2.20	BROWN WOOD
							2.20-2.70	GREY-BROWN MEDIUM TO COARSE SAND
105	3.0	2.30	3.20	2.70	2.00	COARSE	0-0.33	BROWN FINE TO MEDIUM SAND, SOME COARSE SAND
							0.00-2.00	BROWN AND LIGHT BROWN MEDIUM TO COARSE SAND AND GRAVEL
140	2.8	1.80	3.20	2.60	0.00	COARSE	0-0.33	BROWN MEDIUM TO COARSE SAND AND GRAVEL
170	2.6	2.10	1.60	1.10	0.70	COARSE	0-0.33	BROWN MEDIUM TO COARSE SAND AND GRAVEL
							0.00-0.70	BROWN FINE TO MEDIUM SAND AND GRAVEL, COARSE MATTER BELOW
217	1.1	0.45	0.60	0.00	0.00	COARSE	0-0.33	GREY-BROWN MEDIUM TO COARSE SAND

ALLIED PAPER, INC./PORTAGE CREEK/KALAMAZOO RIVER SUPERFUND SITE
 TECHNICAL MEMORANDUM 10
 SUMMARY OF SEDIMENT CHARACTERIZATION FIELD OBSERVATIONS

TRANSECT: KPT2		Date Collected: 08/10/93		River Width (ft): 160.0		Distance to Right Edge of Water (ft): 13		
Distance From Right Bank (ft)	Water Depth (ft)	Water Velocity (fps)	Sediment Depth (ft)	Sediment Penetrated (ft)	Sediment Recovered (ft)	Sediment Type	Interval (ft)	Description
26	1.3	0.00	0.40	0.00	0.00	COARSE	0-0.33	BROWN MEDIUM TO COARSE SAND AND GRAVEL
54	3.1	0.00	0.50	0.00	0.00	COARSE	0-0.33	BROWN MEDIUM TO COARSE SAND AND GRAVEL
82	4.0	0.00	0.80	0.00	0.00	COARSE	0-0.33	BROWN MEDIUM TO COARSE SAND AND GRAVEL
113	5.1	0.00	0.60	0.00	0.00	COARSE	0-0.33	BROWN FINE TO MEDIUM SAND AND GRAVEL
142	4.2	0.00	0.60	0.00	0.00	COARSE	0-0.33	BROWN FINE TO MEDIUM SAND AND GRAVEL
167	1.8	0.00	2.50	2.50	2.50	FINE	0-0.33	GREY AND DARK BROWN FINE SAND AND SILT
							0.00-1.50	FINE GREY SAND, SOME SILT
							1.50-2.50	GREY MEDIUM SAND

ALLIED PAPER, INC./PORTAGE CREEK/KALAMAZOO RIVER SUPERFUND SITE
TECHNICAL MEMORANDUM 10
SUMMARY OF SEDIMENT CHARACTERISATION FIELD OBSERVATIONS

TRANSECT: KPT3		Date Collected: 08/10/93		River Width (ft): 184.0		Distance to Right Edge of Water (ft): 8		
Distance From Right Bank (ft)	Water Depth (ft)	Water Velocity (fps)	Sediment Depth (ft)	Sediment Penetrated (ft)	Sediment Recovered (ft)	Sediment Type	Interval (ft)	Description
18	2.3	0.00	2.30	2.10	1.40	FINE	0-0.33	BROWN AND GREY FINE SAND, SOME SILT
							0.00-0.70	BROWN AND DARK GREY FINE SAND, SOME SILT
							0.70-1.40	GREY MEDIUM AND FINE SAND
46	5.3	0.00	1.60	1.80	1.20	COARSE	0-0.33	BROWN MEDIUM TO COARSE SAND AND GRAVEL
							0.00-1.20	GREY-BROWN FINE TO COARSE SAND AND GRAVEL
72	5.3	0.00	1.80	1.70	1.40	COARSE	0-0.33	BROWN FINE TO MEDIUM SAND, SOME GRAVEL
							0.00-1.40	GREY-BROWN FINE TO COARSE SAND
99	3.6	0.00	1.60	0.00	0.00	COARSE	0-0.33	BROWN FINE TO COARSE SAND AND GRAVEL
124	3.2	0.00	1.20	0.00	0.00	COARSE	0-0.33	BROWN MEDIUM TO COARSE SAND AND GRAVEL
148	2.2	0.00	6.00	5.30	4.65	COARSE	0-0.33	BROWN FINE TO COARSE SAND
							0.00-0.40	BROWN FINE TO COARSE SAND
							0.40-3.80	GREY FINE TO COARSE SAND
							3.80-4.20	LIGHT GREY-BROWN CLAY
							4.20-4.65	GREY MEDIUM TO COARSE SAND, SOME GRAVEL
172	1.5	0.00	5.70	5.20	4.65	FINE	0-0.33	BROWN AND GREY-BROWN FINE TO MEDIUM SAND, SOME SILT
							0.00-0.70	GREY AND DARK GREY FINE SAND AND SILT
							0.70-4.65	GREY FINE TO COARSE SAND, SOME GRAVEL
186	1.2	0.00	4.00	0.00	0.00	FINE	0-0.33	GREY AND DARK GREY FINE TO MEDIUM SAND, SOME SILT

ALLIED PAPER, INC./PORTAGE CREEK/KALAMAZOO RIVER SUPERFUND SITE
TECHNICAL MEMORANDUM 10
SUMMARY OF SEDIMENT CHARACTERIZATION FIELD OBSERVATIONS

TRANSECT: KPT4		Date Collected: 08/10/93		River Width (ft): 183.0		Distance to Right Edge of Water (ft): 22		
Distance From Right Bank (ft)	Water Depth (ft)	Water Velocity (fps)	Sediment Depth (ft)	Sediment Penetrated (ft)	Sediment Recovered (ft)	Sediment Type	Interval (ft)	Description
30	2.1	0.00	2.20	2.20	1.60	COARSE	0-0.33	DARK GREY FINE TO COARSE SAND
							0.00-1.60	GREY & LIGHT GREY FINE-MEDIUM SAND, SOME COARSE & GRAVEL
62	2.9	0.00	3.10	2.40	2.05	COARSE	0-0.33	BROWN FINE TO MEDIUM SAND, SOME COARSE SAND
							0.00-0.20	BROWN FINE SAND
							0.20-0.50	DARK GREY FINE SAND
							0.50-1.00	GREY FINE SAND
							1.00-2.05	GREY MEDIUM TO COARSE SAND, SOME GRAVEL
93	4.0	0.00	2.50	0.00	0.00	COARSE	0-0.33	BROWN MEDIUM TO COARSE SAND AND GRAVEL, SOME CONCRETE
128	3.5	0.00	1.30	0.00	0.00	COARSE	0-0.33	BROWN MEDIUM TO COARSE SAND AND GRAVEL
158	2.5	0.00	2.70	3.00	2.00	COARSE	0-0.33	GREY-BROWN FINE TO COARSE SAND, SOME GRAVEL
							0.00-0.70	GREY-BROWN FINE TO MEDIUM SAND
							0.70-1.10	DARK GREY FINE TO MEDIUM SAND
							1.10-2.00	LIGHT GREY FINE SAND
194	1.8	0.00	9.00	2.80	2.30	FINE	0-0.33	GREY FINE TO MEDIUM SAND, SOME SILT
							0.00-1.30	GREY AND DARK GREY FINE TO COARSE SAND
							1.30-2.30	LIGHT GREY FINE TO COARSE SAND

ALLIED PAPER, INC./PORTAGE CREEK/KALAMASOO RIVER SUPERFUND SITE
TECHNICAL MEMORANDUM 10
SUMMARY OF SEDIMENT CHARACTERISATION FIELD OBSERVATIONS

TRANSECT: KPT5		Date Collected: 08/10/93		River Width (ft): 188.0		Distance to Right Edge of Water (ft): 19		
Distance From Right Bank (ft)	Water Depth (ft)	Water Velocity (fps)	Sediment Depth (ft)	Sediment Penetrated (ft)	Sediment Recovered (ft)	Sediment Type	Interval (ft)	Description
30	2.9	1.20	4.20	3.60	2.90	COARSE	0-0.33	GREY BROWN FINE TO COARSE SAND AND GRAVEL
							0.00-0.60	GREY SILT, LOOSE AND FLUFFY
							0.60-1.20	GREY FINE TO MEDIUM SAND
							1.20-1.80	GREY MEDIUM/COARSE SAND AND GRAVEL
							1.80-2.90	GREY FINE TO MEDIUM SAND
54	2.5	2.40	2.30	2.10	1.30	COARSE	0-0.33	BROWN MEDIUM TO COARSE SAND AND GRAVEL
							0.00-0.20	GREY VERY FINE SILT
							0.20-0.60	GREY-BROWN FINE TO MEDIUM SAND
							0.60-1.30	GREY-BROWN MEDIUM TO COARSE SAND AND GRAVEL
78	2.5	2.10	1.50	1.50	1.45	COARSE	0-0.33	BROWN MEDIUM TO COARSE SAND AND GRAVEL
							0.00-0.50	BROWN MEDIUM TO COARSE SAND WITH GREY FINE SILTY MATERIAL
							0.50-1.45	GREY FINE TO MEDIUM SAND
104	2.0	2.20	3.10	3.00	2.70	COARSE	0-0.33	GREY-BROWN FINE TO MEDIUM SAND, SOME GRAVEL
							0.00-0.30	BROWN FINE TO MEDIUM SAND
							0.30-1.00	LIGHT GREY-BROWN FINE TO MEDIUM SAND
							1.00-2.70	GREY FINE SAND WITH SOME MEDIUM SAND AND PIECES OF WOOD
128	2.2	2.00	2.80	2.60	1.60	COARSE	0-0.33	GREY-BROWN FINE TO MEDIUM SAND
							0.00-0.20	BROWN FINE TO MEDIUM SAND
							0.20-1.60	GREY FINE TO COARSE SAND

ALLIED PAPER, INC./PORTAGE CREEK/KALAMAZOO RIVER SUPERFUND SITE
TECHNICAL MEMORANDUM 10
SUMMARY OF SEDIMENT CHARACTERIZATION FIELD OBSERVATIONS

TRANSECT: KPT5		Date Collected: 08/10/93		River Width (ft): 188.0		Distance to Right Edge of Water (ft): 19		
Distance From Right Bank (ft)	Water Depth (ft)	Water Velocity (fps)	Sediment Depth (ft)	Sediment Penetrated (ft)	Sediment Recovered (ft)	Sediment Type	Interval (ft)	Description
152	2.2	1.90	2.60	2.20	1.60	COARSE	0-0.33	GREY-BROWN FINE TO COARSE SAND
							0.00-0.10	GREY FINE SILTY FLUFFY MATERIAL
							0.10-0.60	BROWN FINE TO MEDIUM SAND
							0.60-1.60	GREY FINE TO COARSE SAND
176	2.7	1.85	1.40	1.40	1.40	COARSE	0-0.33	BROWN FINE TO COARSE SAND
							0.00-0.10	GREY FLUFFY SILTY MATERIAL
							0.10-0.60	BROWN MEDIUM TO COARSE SAND
							0.60-1.40	LIGHT GREY FINE TO MEDIUM SAND
200	2.4	0.55	2.60	2.60	2.00	FINE	0-0.33	GREY FINE SAND
							0.00-0.80	DARK GREY FINE SAND, SILT
							0.80-2.00	GREY FINE TO MEDIUM SAND

ALLIED PAPER, INC./PORTAGE CREEK/KALAMAZOO RIVER SUPERFUND SITE
TECHNICAL MEMORANDUM 10
SUMMARY OF SEDIMENT CHARACTERISATION FIELD OBSERVATIONS

TRANSECT: KPT6		Date Collected: 08/11/93		River Width (ft): 184.0		Distance to Right Edge of Water (ft): 20		
Distance From Right Bank (ft)	Water Depth (ft)	Water Velocity (fps)	Sediment Depth (ft)	Sediment Penetrated (ft)	Sediment Recovered (ft)	Sediment Type	Interval (ft)	Description
28	1.7	0.00	3.30	2.00	1.95	COARSE	0-0.33	DARK BROWN FINE TO MEDIUM SAND, SOME GRAVEL
							0.00-0.20	DARK BROWN FINE TO MEDIUM SAND
							0.20-1.20	DARK GREY-BROWN FINE TO MEDIUM SAND
							1.20-1.95	GREY FINE TO COARSE SAND
53	1.5	0.00	1.50	1.30	1.30	COARSE	0-0.33	BROWN MEDIUM TO COARSE SAND AND GRAVEL
							0.00-0.20	DARK BROWN COARSE SAND AND GRAVEL
							0.20-1.30	LIGHT BROWN FINE TO COARSE SAND, SOME GRAVEL
76	2.0	0.00	1.10	1.20	1.15	COARSE	0-0.33	DARK BROWN FINE TO COARSE SAND AND GRAVEL
							0.00-0.40	BROWN MEDIUM TO COARSE SAND AND GRAVEL
							0.40-1.15	GREY FINE TO MEDIUM SAND, SOME COARSE SAND AND GRAVEL
98	2.1	0.00	1.30	1.60	1.55	COARSE	0-0.33	GREY-BROWN FINE TO MEDIUM SAND, SOME COARSE SAND AND GRAVEL
							0.00-0.60	BROWN FINE TO COARSE SAND AND GRAVEL
							0.60-1.40	GREY FINE TO MEDIUM SAND
							1.40-1.55	GREY MEDIUM TO COARSE SAND AND GRAVEL
125	2.2	0.00	3.10	3.00	2.90	COARSE	0-0.33	BROWN MEDIUM SAND, SOME FINE SAND AND GRAVEL
							0.00-0.40	BROWN FINE TO COARSE SAND AND GRAVEL
							0.40-0.70	DARK BROWN TO BLACK FINE SAND
							0.70-2.90	GREY FINE SAND, SOME MEDIUM SAND

ALLIED PAPER, INC./PORTAGE CREEK/KALAMAZOO RIVER SUPERFUND SITE
TECHNICAL MEMORANDUM 10
SUMMARY OF SEDIMENT CHARACTERIZATION FIELD OBSERVATIONS

TRANSECT: KPT6		Date Collected: 08/11/93		River Width (ft): 184.0		Distance to Right Edge of Water (ft): 20		
Distance From Right Bank (ft)	Water Depth (ft)	Water Velocity (fps)	Sediment Depth (ft)	Sediment Penetrated (ft)	Sediment Recovered (ft)	Sediment Type	Interval (ft)	Description
148	2.8	0.00	4.60	4.60	4.10	COARSE	0-0.33	BROWN FINE TO MEDIUM SAND, SOME GRAVEL
							0.00-0.30	BROWN FINE TO MEDIUM SAND
							0.30-1.50	GREY FINE TO COARSE SAND AND GRAVEL
							1.50-4.10	GREY TO LIGHT GREY FINE SAND
166	3.4	0.00	4.50	3.00	2.30	COARSE	0-0.33	BROWN FINE TO MEDIUM SAND, SOME COARSE SAND AND GRAVEL
							0.00-0.50	BROWN FINE TO COARSE SAND AND GRAVEL
							0.50-0.90	GREY FINE TO MEDIUM SAND
							0.90-1.10	LARGE GREY ROCK
							1.10-2.30	FINE GREY SAND
191	2.8	0.00	1.80	1.70	1.20	COARSE	0-0.33	GREY-BROWN FINE SAND AND SILT, SOME GRAVEL
							0.00-0.20	FINE TO COARSE SAND AND GRAVEL
							0.20-1.20	GREY FINE SAND AND SILT

ALLIED PAPER, INC./PORTAGE CREEK/KALAMAZOO RIVER SUPERFUND SITE
TECHNICAL MEMORANDUM 10
SUMMARY OF SEDIMENT CHARACTERIZATION FIELD OBSERVATIONS

TRANSECT: KPT7		Date Collected: 08/11/93		River Width (ft): 178.0		Distance to Right Edge of Water (ft): 25		
Distance From Right Bank (ft)	Water Depth (ft)	Water Velocity (fps)	Sediment Depth (ft)	Sediment Penetrated (ft)	Sediment Recovered (ft)	Sediment Type	Interval (ft)	Description
35	1.7	0.00	0.70	0.50	0.40	COARSE	0-0.33	GREY-BROWN FINE TO COARSE SAND, SOME GRAVEL
							0.00-0.40	GREY-BROWN FINE TO COARSE SAND, SOME GRAVEL
57	1.9	0.00	2.60	2.20	1.60	COARSE	0-0.33	BROWN FINE TO MEDIUM SAND, SOME GRAVEL
							0.00-0.40	BROWN FINE TO COARSE SAND, SOME GRAVEL
							0.40-1.10	GREY-BROWN FINE TO MEDIUM SAND
							1.10-1.40	DARK BROWN TO BLACK FINE SAND
							1.40-1.60	GREY FINE SAND
79	1.9	0.00	1.20	1.20	0.70	COARSE	0-0.33	GREY-BROWN MEDIUM TO COARSE SAND AND GRAVEL
							0.00-0.30	BROWN MEDIUM TO COARSE SAND AND GRAVEL
							0.30-0.70	DARK GREY FINE SAND
99	2.6	0.00	1.10	1.10	0.60	COARSE	0-0.33	GREY-BROWN FINE TO MEDIUM SAND, SOME GRAVEL
							0.00-0.30	GREY-BROWN FINE TO MEDIUM SAND, SOME GRAVEL
							0.30-0.60	GREY FINE TO MEDIUM SAND WITH SOME GRAVEL
125	3.2	0.00	0.80	1.00	0.60	COARSE	0-0.33	BROWN MEDIUM TO COARSE SAND, SOME GRAVEL, SOME FINE SAND
							0.00-0.30	BROWN MEDIUM TO COARSE SAND AND GRAVEL
							0.30-0.60	LIGHT BROWN FINE TO MEDIUM SAND
146	2.4	0.00	1.50	1.00	0.70	COARSE	0-0.33	GREY-BROWN FINE TO COARSE SAND, SOME GRAVEL
							0.00-0.70	GREY-BROWN FINE TO COARSE SAND, SOME GRAVEL
171	1.3	0.00	1.80	1.40	0.70	COARSE	0-0.33	GREY-BROWN FINE TO COARSE SAND AND GRAVEL
							0.00-0.70	GREY-BROWN FINE TO COARSE SAND AND GRAVEL

ALLIED PAPER, INC./PORTAGE CREEK/KALAMAZOO RIVER SUPERFUND SITE
 TECHNICAL MEMORANDUM 10
 SUMMARY OF SEDIMENT CHARACTERIZATION FIELD OBSERVATIONS

TRANSECT: KPT7		Date Collected: 08/11/93		River Width (ft): 178.0		Distance to Right Edge of Water (ft): 25		
Distance From Right Bank (ft)	Water Depth (ft)	Water Velocity (fps)	Sediment Depth (ft)	Sediment Penetrated (ft)	Sediment Recovered (ft)	Sediment Type	Interval (ft)	Description
195	1.7	0.00	3.40	3.00	2.50	FINE	0-0.33	DARK BROWN SILT WITH FINE SAND AND ORGANIC MATTER
							0.00-0.20	BROWN FINE SAND
							0.20-1.00	DARK BROWN TO BLACK FINE SAND AND SILT
							1.00-1.25	GREY FINE TO MEDIUM SAND, SOME COARSE SAND

ALLIED PAPER, INC./PORTAGE CREEK/KALAMAZOO RIVER SUPERFUND SITE
TECHNICAL MEMORANDUM 10
SUMMARY OF SEDIMENT CHARACTERIZATION FIELD OBSERVATIONS

TRANSECT: KPT8		Date Collected: 08/11/93		River Width (ft): 177.0		Distance to Right Edge of Water (ft): 26		
Distance From Right Bank (ft)	Water Depth (ft)	Water Velocity (fps)	Sediment Depth (ft)	Sediment Penetrated (ft)	Sediment Recovered (ft)	Sediment Type	Interval (ft)	Description
35	1.3	0.00	1.10	0.80	0.60	COARSE	0-0.33	GREY-BROWN FINE TO MEDIUM SAND, SOME GRAVEL
							0.00-0.60	GREY-BROWN FINE TO MEDIUM SAND, SOME GRAVEL
58	1.9	0.00	1.60	1.10	0.90	COARSE	0-0.33	GREY-BROWN FINE TO COARSE SAND AND GRAVEL
							0.00-0.30	BROWN FINE TO MEDIUM SAND
							0.30-0.90	DARK GREY FINE TO COARSE SAND, SOME GRAVEL
79	1.7	0.00	1.40	1.10	0.80	COARSE	0-0.33	GREY-BROWN FINE TO MEDIUM SAND
							0.00-0.40	FINE TO MEDIUM BROWN SAND, SOME COARSE SAND
							0.40-0.60	DARK BROWN TO BLACK FINE SAND
							0.60-0.80	GREY FINE SAND
104	1.9	0.00	2.20	2.10	1.30	COARSE	0-0.33	GREY-BROWN FINE TO COARSE SAND
							0.00-0.30	BROWN FINE TO COARSE SAND, SOME GRAVEL
							0.30-1.30	GREY FINE TO COARSE SAND, SOME GRAVEL
127	2.7	0.00	1.40	1.40	1.20	COARSE	0-0.33	GREY-BROWN FINE TO COARSE SAND AND GRAVEL
							0.00-1.20	BROWN TO LIGHT BROWN FINE TO COARSE SAND
150	3.5	0.00	1.50	1.50	1.10	COARSE	0-0.33	GREY-BROWN MEDIUM TO COARSE SAND, SOME GRAVEL AND SOME FINE SAND
							0.00-1.10	GREY-BROWN FINE TO COARSE SAND, SOME GRAVEL
169	4.2	0.00	0.80	1.00	1.00	COARSE	0-0.33	GREY-BROWN FINE TO COARSE SAND AND SOME GRAVEL
							0.00-0.40	BROWN FINE TO MEDIUM SAND, SOME GRAVEL
							0.40-1.00	GREY FINE TO MEDIUM SAND

ALLIED PAPER, INC./PORTAGE CREEK/KALAMAZOO RIVER SUPERFUND SITE
 TECHNICAL MEMORANDUM 10
 SUMMARY OF SEDIMENT CHARACTERIZATION FIELD OBSERVATIONS

TRANSECT: KPT8		Date Collected: 08/11/93		River Width (ft): 177.0		Distance to Right Edge of Water (ft): 26		
Distance From Right Bank (ft)	Water Depth (ft)	Water Velocity (fps)	Sediment Depth (ft)	Sediment Penetrated (ft)	Sediment Recovered (ft)	Sediment Type	Interval (ft)	Description
191	3.2	0.00	1.30	1.10	1.00	COARSE	0-0.33	GREY-BROWN MEDIUM TO COARSE SAND, SOME GRAVEL AND SOME FINE SAND
							0.00-0.40	BROWN MEDIUM TO COARSE SAND, SOME GRAVEL
							0.40-1.00	GREY FINE TO MEDIUM SAND

ALLIED PAPER, INC./PORTAGE CREEK/KALAMAZOO RIVER SUPERFUND SITE
TECHNICAL MEMORANDUM 10
SUMMARY OF SEDIMENT CHARACTERIZATION FIELD OBSERVATIONS

TRANSECT: KPT9		Date Collected: 08/12/93		River Width (ft): 148.0		Distance to Right Edge of Water (ft): 19		
Distance From Right Bank (ft)	Water Depth (ft)	Water Velocity (fps)	Sediment Depth (ft)	Sediment Penetrated (ft)	Sediment Recovered (ft)	Sediment Type	Interval (ft)	Description
25	0.8	0.57	1.60	1.20	1.00	FINE	0-0.33	BROWN FINE SAND, DARK BROWN TO BLACK FINE SAND AND ORGANIC MATTER
							0.00-0.20	BROWN FINE SAND
							0.20-1.00	DARK BROWN TO BLACK FINE TO MEDIUM SAND, SOME GRAVEL
48	1.6	1.25	1.90	1.90	0.90	COARSE	0-0.33	GREY-BROWN FINE TO COARSE SAND AND GRAVEL
							0.00-0.10	BROWN COARSE SAND AND GRAVEL
							0.10-0.30	BROWN FINE TO MEDIUM SAND
							0.30-0.90	GREY FINE TO COARSE SAND
68	1.4	1.65	3.00	2.70	2.00	COARSE	0-0.33	GREY-BROWN FINE TO COARSE SAND AND GRAVEL
							0.00-0.30	BROWN FINE TO COARSE SAND, SOME GRAVEL
							0.30-1.20	GREY FINE TO MEDIUM SAND
							1.20-2.00	GREY FINE TO COARSE SAND, SOME GRAVEL
88	2.2	2.10	2.30	2.30	1.50	COARSE	0-0.33	GREY-BROWN FINE TO COARSE SAND AND GRAVEL
							0.00-0.30	BROWN FINE TO COARSE SAND, SOME GRAVEL
							0.30-1.50	MEDIUM TO COARSE SAND, SOME FINE SAND
109	3.0	2.20	3.00	3.00	2.80	COARSE	0-0.33	GREY-BROWN FINE TO COARSE SAND AND GRAVEL
							0.00-1.60	BROWN FINE TO COARSE SAND
							1.60-2.80	LIGHT BROWN FINE SAND
129	3.2	2.70	2.90	2.90	2.40	COARSE	0-0.33	GREY-BROWN FINE SAND, SOME MEDIUM TO COARSE SAND AND GRAVEL
							0.00-2.40	BROWN AND GREY-BROWN FINE TO COARSE SAND, SOME GRAVEL

ALLIED PAPER, INC./PORTAGE CREEK/KALAMAZOO RIVER SUPERFUND SITE
 TECHNICAL MEMORANDUM 10
 SUMMARY OF SEDIMENT CHARACTERIZATION FIELD OBSERVATIONS

TRANSECT: KPT9		Date Collected: 08/12/93		River Width (ft): 148.0		Distance to Right Edge of Water (ft): 19		
Distance From Right Bank (ft)	Water Depth (ft)	Water Velocity (fps)	Sediment Depth (ft)	Sediment Penetrated (ft)	Sediment Recovered (ft)	Sediment Type	Interval (ft)	Description
150	2.1	2.10	2.50	2.50	2.00	COARSE	0-0.33	GREY-BROWN FINE TO COARSE SAND AND GRAVEL
							0.00-0.10	BROWN COARSE SAND AND GRAVEL
							0.10-0.40	BROWN FINE TO MEDIUM SAND
							0.40-2.00	GREY FINE TO COARSE SAND, SOME GRAVEL

ALLIED PAPER, INC./PORTAGE CREEK/KALAMAZOO RIVER SUPERFUND SITE
TECHNICAL MEMORANDUM 10
SUMMARY OF SEDIMENT CHARACTERIZATION FIELD OBSERVATIONS

TRANSECT: KPT10		Date Collected: 08/12/93		River Width (ft): 187.0		Distance to Right Edge of Water (ft): 30		
Distance From Right Bank (ft)	Water Depth (ft)	Water Velocity (fps)	Sediment Depth (ft)	Sediment Penetrated (ft)	Sediment Recovered (ft)	Sediment Type	Interval (ft)	Description
41	0.8	0.00	3.10	2.70	1.80	FINE	0-0.33	GREY-BROWN AND DARK GREY FINE SAND WITH ORGANIC MATTER
							0.00-0.20	BROWN FINE SAND
							0.20-0.60	GREY CLAY
							0.60-1.30	DARK GREY TO BLACK FINE SAND
							1.30-1.80	DARK GREY TO BLACK FINE TO COARSE SAND, SOME GRAVEL
72	1.5	0.00	3.10	2.80	2.70	COARSE	0-0.33	GREY-BROWN FINE TO COARSE SAND AND GRAVEL
							0.00-0.20	BROWN FINE SAND
							0.20-1.80	GREY AND DARK GREY FINE TO COARSE SAND
							1.80-2.70	GREY FINE TO MEDIUM SAND
101	2.8	0.00	3.20	3.20	3.00	COARSE	0-0.33	GREY-BROWN MEDIUM TO COARSE SAND, SOME FINE SAND
							0.00-0.20	BROWN MEDIUM TO COARSE SAND, SOME FINE SAND
							0.20-2.30	LIGHT GREY FINE TO COARSE SAND
							2.30-3.00	LIGHT GREY FINE TO COARSE SAND AND GRAVEL
132	3.2	0.00	2.60	2.20	1.50	COARSE	0-0.33	GREY-BROWN FINE TO COARSE SAND, SOME GRAVEL
							0.00-1.50	BROWN FINE TO COARSE SAND, SOME GRAVEL
164	2.2	0.00	3.00	2.80	1.60	COARSE	0-0.33	GREY-BROWN MEDIUM TO COARSE SAND AND GRAVEL, SOME FINE SAND
							0.00-0.20	BROWN FINE TO MEDIUM SAND
							0.20-1.60	LIGHT BROWN & GREY-BROWN FINE TO COARSE SAND, SOME GRAVEL

ALLIED PAPER, INC./PORTAGE CREEK/KALAMAZOO RIVER SUPERFUND SITE
TECHNICAL MEMORANDUM 10
SUMMARY OF SEDIMENT CHARACTERIZATION FIELD OBSERVATIONS

TRANSECT: KPT10		Date Collected: 08/12/93		River Width (ft): 187.0		Distance to Right Edge of Water (ft): 30		
Distance From Right Bank (ft)	Water Depth (ft)	Water Velocity (fps)	Sediment Depth (ft)	Sediment Penetrated (ft)	Sediment Recovered (ft)	Sediment Type	Interval (ft)	Description
184	2.2	0.00	3.50	3.00	2.40	COARSE	0-0.33	GREY-BROWN MEDIUM TO COARSE SAND AND GRAVEL, SOME FINE SAND
							0.00-0.20	BROWN MEDIUM TO COARSE SAND AND GRAVEL
							0.20-2.00	GREY FINE TO COARSE SAND
							2.00-2.40	GREY FINE SAND
211	1.1	0.00	2.70	2.20	1.80	FINE	0-0.33	DARK GREY FINE SAND, SOME ORGANIC MATTER
							0.00-0.30	GREY FINE SAND, SOME ORGANIC MATTER
							0.30-1.80	GREY FINE TO MEDIUM SAND, SOME COARSE SAND

ALLIED PAPER, INC./PORTAGE CREEK/KALAMAZOO RIVER SUPERFUND SITE
 TECHNICAL MEMORANDUM 10
 SUMMARY OF SEDIMENT CHARACTERIZATION FIELD OBSERVATIONS

TRANSECT: KPT11 Date Collected: 08/12/93 River Width (ft): 342.0 Distance to Right Edge of Water (ft): 24								
Distance From Right Bank (ft)	Water Depth (ft)	Water Velocity (fps)	Sediment Depth (ft)	Sediment Penetrated (ft)	Sediment Recovered (ft)	Sediment Type	Interval (ft)	Description
51	0.4	0.00	5.40	5.30	3.80	COARSE	0-0.33	BROWN AND DARK GREY FINE TO MEDIUM SAND, SOME ORGANIC MATTER
							0.00-0.20	BROWN FINE SAND
							0.20-1.00	DARK GREY TO BLACK FINE SAND, SOME ORGANIC MATTER
							1.00-3.80	GREY MEDIUM TO COARSE SAND
106	0.9	0.00	8.50	7.10	5.60	COARSE	0-0.33	DARK GREY FINE TO MEDIUM SAND WITH ORGANIC MATTER
							0.00-0.40	DARK GREY FINE TO MEDIUM SAND WITH SOME ORGANIC MATTER
							0.40-2.60	GREY FINE TO COARSE SAND
							2.60-3.70	DARK GREY FINE TO MEDIUM SAND, SOME ORGANIC MATTER
							3.70-5.60	GREY MEDIUM TO COARSE SAND
164	4.2	0.00	5.50	5.50	4.70	COARSE	0-0.33	GREY-BROWN FINE TO COARSE SAND, SOME GRAVEL
							0.00-0.90	GREY-BROWN FINE TO COARSE SAND
							0.90-2.60	GREY FINE TO MEDIUM SAND
							2.60-4.70	BROWN SILT-LIKE MATERIAL
213	1.9	0.00	1.60	1.20	1.00	COARSE	0-0.33	GREY-BROWN MEDIUM TO COARSE SAND AND GRAVEL, SOME FINE SAND
							0.00-0.30	BROWN MEDIUM TO COARSE SAND, SOME GRAVEL AND FINE SAND
							0.30-1.00	GREY-BROWN FINE TO COARSE SAND

ALLIED PAPER, INC./PORTAGE CREEK/KALAMAZOO RIVER SUPERFUND SITE
TECHNICAL MEMORANDUM 10
SUMMARY OF SEDIMENT CHARACTERIZATION FIELD OBSERVATIONS

TRANSECT: KPT11		Date Collected: 08/12/93		River Width (ft): 342.0		Distance to Right Edge of Water (ft): 24		
Distance From Right Bank (ft)	Water Depth (ft)	Water Velocity (fps)	Sediment Depth (ft)	Sediment Penetrated (ft)	Sediment Recovered (ft)	Sediment Type	Interval (ft)	Description
271	1.1	0.00	4.30	3.80	3.20	COARSE	0-0.33	GREY-BROWN MEDIUM TO COARSE SAND, SOME FINE SAND
							0.00-0.40	GREY-BROWN MEDIUM TO COARSE SAND, SOME FINE SAND
							0.40-1.50	DARK GREY FINE TO MEDIUM SAND
							1.50-2.50	GREY FINE TO COARSE SAND
							2.50-3.20	GREY FINE TO MEDIUM SAND
327	0.4	0.00	4.60	3.10	2.60	FINE	0-0.33	GREY-BROWN AND DARK GREY FINE SAND
							0.00-0.20	BROWN FINE SAND
							0.20-2.10	GREY AND DARK GREY FINE SAND AND SOME MEDIUM SAND
							2.10-2.60	BROWN PIECE OF WOOD
486	0.2	0.00	4.30	2.60	1.60	FINE	0-0.33	DARK GREY SILT AND ORGANIC MATTER
							0.00-0.50	DARK GREY SILT AND ORGANIC MATTER
							0.50-1.40	GREY CLAY
							1.40-1.60	GREY MEDIUM TO COARSE SAND
562	0.2	0.00	2.90	2.80	1.50	FINE	0-0.33	DARK GREY TO BLACK SILT, ORGANIC MATTER AND SOME CLAY
							0.00-0.50	DARK GREY TO BLACK SILT, ORGANIC MATTER, AND SOME CLAY
							0.50-1.30	GREY CLAY
							1.30-1.50	GREY MEDIUM TO COARSE SAND

ALLIED PAPER, INC./PORTAGE CREEK/KALAMAZOO RIVER SUPERFUND SITE
TECHNICAL MEMORANDUM 10
SUMMARY OF SEDIMENT CHARACTERIZATION FIELD OBSERVATIONS

TRANSECT: KPT12		Date Collected: 08/13/93		River Width (ft): 145.0		Distance to Right Edge of Water (ft): 14		
Distance From Right Bank (ft)	Water Depth (ft)	Water Velocity (fps)	Sediment Depth (ft)	Sediment Penetrated (ft)	Sediment Recovered (ft)	Sediment Type	Interval (ft)	Description
24	4.0	0.00	4.10	4.10	3.20	COARSE	0-0.33	GREY-BROWN MEDIUM TO COARSE SAND WITH A LOT OF GRAVEL
							0.00-0.20	GREY-BROWN GRAVEL
							0.20-0.80	GREY FINE TO MEDIUM SAND
							0.80-1.70	BLACK SILT-LIKE MATERIAL
							1.70-3.20	LIGHT GREY FINE SAND
47	4.1	0.00	2.00	2.00	1.60	COARSE	0-0.33	GREY-BROWN FINE TO COARSE SAND AND GRAVEL
							0.00-0.30	BROWN FINE TO COARSE SAND
							0.30-0.50	GREY FINE TO COARSE SAND
							0.50-0.70	DARK GREY TO BLACK FINE TO COARSE SAND
							0.70-1.60	GREY FINE TO COARSE SAND, SOME GRAVEL
69	3.3	0.00	5.70	5.70	5.20	COARSE	0-0.33	GREY-BROWN FINE TO COARSE SAND AND GRAVEL
							0.00-0.20	BROWN FINE TO COARSE SAND, SOME GRAVEL
							0.20-2.80	GREY AND DARK GREY FINE TO COARSE SAND
							2.80-4.90	LIGHT GREY FINE SAND
							4.90-5.20	GREY VERY FINE SAND
90	2.8	0.00	6.40	6.40	6.10	COARSE	0-0.33	GREY-BROWN FINE TO COARSE SAND, SOME GRAVEL
							0.00-0.80	GREY-BROWN FINE TO COARSE SAND
							0.80-3.00	GREY AND DARK GREY FINE TO MEDIUM SAND
							3.00-3.30	LIGHT GREY FINE SAND
							3.30-6.10	LIGHT GREY VERY FINE SAND

ALLIED PAPER, INC./PORTAGE CREEK/KALAMAZOO RIVER SUPERFUND SITE
TECHNICAL MEMORANDUM 10
SUMMARY OF SEDIMENT CHARACTERIZATION FIELD OBSERVATIONS

TRANSECT: KPT12		Date Collected: 08/13/93		River Width (ft): 145.0		Distance to Right Edge of Water (ft): 14		
Distance From Right Bank (ft)	Water Depth (ft)	Water Velocity (fps)	Sediment Depth (ft)	Sediment Penetrated (ft)	Sediment Recovered (ft)	Sediment Type	Interval (ft)	Description
110	2.4	0.00	3.20	3.20	1.50	COARSE	0-0.33	GREY-BROWN FINE TO MEDIUM SAND, SOME COARSE SAND
							0.00-0.50	GREY-BROWN FINE TO MEDIUM SAND, SOME COARSE SAND
							0.50-0.90	DARK GREY FINE TO MEDIUM SAND
							0.90-1.50	GREY FINE TO COARSE SAND, SOME GRAVEL
131	2.9	0.00	2.80	2.80	2.10	COARSE	0-0.33	GREY-BROWN FINE TO MEDIUM SAND, SOME COARSE SAND, SOME GRAVEL
							0.00-2.10	GREY-BROWN FINE TO COARSE SAND, SOME GRAVEL
151	2.1	0.00	2.30	2.30	1.00	COARSE	0-0.33	GREY-BROWN FINE TO MEDIUM SAND, SOME COARSE SAND
							0.00-1.00	GREY-BROWN FINE TO MEDIUM SAND, SOME COARSE SAND

ALLIED PAPER, INC./PORTAGE CREEK/KALAMAZOO RIVER SUPERFUND SITE
TECHNICAL MEMORANDUM 10
SUMMARY OF SEDIMENT CHARACTERISATION FIELD OBSERVATIONS

TRANSECT: KPT13		Date Collected: 08/13/93		River Width (ft): 180.0		Distance to Right Edge of Water (ft): 28		
Distance From Right Bank (ft)	Water Depth (ft)	Water Velocity (fps)	Sediment Depth (ft)	Sediment Penetrated (ft)	Sediment Recovered (ft)	Sediment Type	Interval (ft)	Description
39	0.8	0.63	7.20	7.00	5.90	FINE	0-0.33	GREY-BROWN FINE SAND WITH ORGANIC MATTER
							0.00-0.40	GREY-BROWN FINE SAND
							0.40-1.10	GREY AND DARK GREY CLAY-LIKE MATERIAL
							1.10-1.80	GREY FINE SAND
							1.80-2.10	DARK GREY FINE SAND
							2.10-3.10	GREY FINE TO MEDIUM SAND
							3.10-5.90	GREY FINE SAND WITH DARK GREY TO BLACK SILT-LIKE MATERIAL
63	0.8	0.60	7.60	7.60	5.60	FINE	0-0.33	GREY-BROWN FINE SAND WITH ORGANIC MATTER
							0.00-1.80	GREY AND DARK GREY FINE SAND
							1.80-3.00	GREY AND DARK GREY FINE TO COARSE SAND
							3.00-3.60	BLACK SILT-LIKE MATERIAL
							3.60-5.10	GREY FINE TO MEDIUM SAND
							5.10-5.60	BLACK SILT-LIKE MATERIAL
86	2.0	0.81	6.30	6.00	5.20	COARSE	0-0.33	LIGHT BROWN FINE TO COARSE SAND AND GRAVEL
							0.00-1.70	BROWN TO GREY-BROWN FINE TO COARSE SAND AND GRAVEL
							1.70-2.30	DARK BROWN TO BLACK SILT-LIKE MATERIAL
							2.30-3.00	GREY-BROWN FINE TO COARSE SAND, SOME GRAVEL
							3.00-3.70	DARK BROWN TO DARK GREY FINE TO COARSE SAND
							3.70-4.30	DARK GREY FINE TO MEDIUM SAND WITH TRACE SILT
							4.30-5.20	DARK GREY/BLACK/GREY FINE-MEDIUM SAND, ORGANICS 4.3'-4.7'

ALLIED PAPER, INC./PORTAGE CREEK/KALAMAZOO RIVER SUPERFUND SITE
TECHNICAL MEMORANDUM 10
SUMMARY OF SEDIMENT CHARACTERIZATION FIELD OBSERVATIONS

TRANSECT: KPT13		Date Collected: 08/13/93		River Width (ft): 180.0		Distance to Right Edge of Water (ft): 28		
Distance From Right Bank (ft)	Water Depth (ft)	Water Velocity (fps)	Sediment Depth (ft)	Sediment Penetrated (ft)	Sediment Recovered (ft)	Sediment Type	Interval (ft)	Description
107	3.5	1.57	6.80	5.70	4.60	COARSE	0-0.33	BROWN FINE TO COARSE SAND WITH GRAVEL
							0.00-0.60	BROWN FINE TO COARSE SAND WITH GRAVEL
							0.60-2.20	DARK GREY FINE TO MEDIUM SAND
							2.20-3.00	DARK GREY TO BLACK SILT-LIKE MATTER WITH FINE SAND
							3.00-4.60	LIGHT GREY TO GREY FINE TO MEDIUM SAND
131	4.3	2.50	3.70	3.10	2.20	COARSE	0-0.33	BROWN FINE TO COARSE SAND WITH GRAVEL
							0.00-1.10	BROWN FINE TO COARSE SAND AND GRAVEL
							1.10-1.30	DARK BROWN TO GREY FINE TO COARSE SAND
							1.30-1.40	DARK BROWN TO BLACK FINE TO MEDIUM SAND WITH SILTY MATTER
							1.40-2.20	GREY FINE TO COARSE SAND AND GRAVEL
155	3.4	2.00	4.40	4.40	2.90	COARSE	0-0.33	BROWN FINE TO COARSE SAND WITH GRAVEL
							0.00-0.10	GRAVEL
							0.10-0.30	BROWN FINE TO COARSE SAND, SOME GRAVEL
							0.30-0.60	DARK GREY FINE TO MEDIUM SAND, WOOD DEBRIS
							0.60-1.50	DARK GREY TO BROWN FINE SAND WITH BLACK SILT MATERIAL
							1.50-2.90	GREY FINE TO COARSE SAND
179	3.4	1.60	4.60	4.20	2.60	COARSE	0-0.33	BROWN TO GREY FINE TO COARSE SAND AND GRAVEL
							0.00-1.70	BROWN TO GREY FINE TO COARSE SAND WITH GRAVEL
							1.70-2.10	DARK GREY FINE TO MEDIUM SAND, TRACE SILT
							2.10-2.60	DARK GREY FINE SAND WITH BLACK SILT

ALLIED PAPER, INC./PORTAGE CREEK/KALAMAZOO RIVER SUPERFUND SITE
TECHNICAL MEMORANDUM 10
SUMMARY OF SEDIMENT CHARACTERISATION FIELD OBSERVATIONS

TRANSECT: KPT13		Date Collected: 08/13/93		River Width (ft): 180.0		Distance to Right Edge of Water (ft): 28		
Distance From Right Bank (ft)	Water Depth (ft)	Water Velocity (fps)	Sediment Depth (ft)	Sediment Penetrated (ft)	Sediment Recovered (ft)	Sediment Type	Interval (ft)	Description
197	2.6	1.22	7.60	6.70	5.60	COARSE	0-0.33	BROWN TO GREY FINE TO COARSE SAND WITH GRAVEL
							0.00-0.50	BROWN TO GREY FINE TO COARSE SAND, SOME GRAVEL
							0.50-1.40	DARK GREY TO BLACK FINE SAND WITH SILT
							1.40-2.80	GREY MEDIUM TO COARSE SAND AND GRAVEL, TRACE FINE SAND
							2.80-3.40	DARK GREY FINE SAND, TRACE SILT AND WOOD DEBRIS
							3.40-5.60	LIGHT BROWN FINE TO MEDIUM SAND

ALLIED PAPER, INC./PORTAGE CREEK/KALAMAZOO RIVER SUPERFUND SITE
TECHNICAL MEMORANDUM 10
SUMMARY OF SEDIMENT CHARACTERIZATION FIELD OBSERVATIONS

TRANSECT: KPT14		Date Collected: 08/16/93		River Width (ft): 472.0		Distance to Right Edge of Water (ft): 13		
Distance From Right Bank (ft)	Water Depth (ft)	Water Velocity (fps)	Sediment Depth (ft)	Sediment Penetrated (ft)	Sediment Recovered (ft)	Sediment Type	Interval (ft)	Description
23	3.0	0.00	7.70	7.60	6.40	FINE	0-0.33	DARK GREY FINE TO COARSE SAND WITH ORGANIC MATTER
							0.00-2.10	GREY & DARK GREY FINE-MEDIUM SAND, SOME ORGANICS & GRAVEL
							2.10-6.40	LIGHT BROWN FINE SAND
89	4.0	0.00	6.30	6.30	4.10	FINE	0-0.33	BROWN TO DARK BROWN SILT
							0.00-1.00	BROWN TO DARK BROWN SILT
							1.00-1.30	GREY CLAY-LIKE MATERIAL
							1.30-2.70	BLACK SILT-LIKE MATERIAL
							2.70-3.00	GREY FINE TO MEDIUM SAND
							3.00-4.10	LIGHT BROWN FINE SAND
149	2.4	0.00	8.40	6.70	5.20	FINE	0-0.33	DARK GREY-BROWN FINE TO MEDIUM SAND WITH ORGANIC MATTER
							0.00-0.20	BROWN FINE TO MEDIUM SAND
							0.20-1.40	DARK GREY FINE SAND, SOME ORGANIC MATTER
							1.40-3.20	GREY FINE TO COARSE SAND
							3.20-5.00	BLACK SILT-LIKE MATERIAL
							5.00-5.20	GREY FINE SAND
209	4.0	0.00	6.10	6.10	5.40	FINE	0-0.33	GREY-BROWN FINE SAND, SOME ORGANIC MATTER
							0.00-0.90	GREY-BROWN & DARK BROWN FINE SAND, SOME ORGANIC MATTER
							0.90-3.10	GREY AND GREY-BROWN FINE TO COARSE SAND
							3.10-4.50	DARK GREY FINE SAND WITH SOME ORGANIC MATTER
							4.50-5.40	LIGHT GREY-BROWN VERY FINE SAND

ALLIED PAPER, INC./PORTAGE CREEK/KALAMAZOO RIVER SUPERFUND SITE
TECHNICAL MEMORANDUM 10
SUMMARY OF SEDIMENT CHARACTERIZATION FIELD OBSERVATIONS

TRANSECT: KPT14		Date Collected: 08/16/93		River Width (ft): 472.0		Distance to Right Edge of Water (ft): 13		
Distance From Right Bank (ft)	Water Depth (ft)	Water Velocity (fps)	Sediment Depth (ft)	Sediment Penetrated (ft)	Sediment Recovered (ft)	Sediment Type	Interval (ft)	Description
274	1.5	0.00	8.20	7.30	5.80	FINE	0-0.33	GREY-BROWN FINE SAND WITH A LOT OF ORGANIC MATTER
							0.00-0.40	GREY-BROWN FINE SAND WITE A LOT OF ORGANIC MATTER
							0.40-5.20	GREY AND DARK GREY FINE TO COARSE SAND
							5.20-5.80	BLACK SILT-LIKE MATERIAL
341	2.5	0.00	6.80	6.20	4.40	FINE	0-0.33	GREY-BROWN FINE TO MEDIUM SAND
							0.00-0.40	GREY-BROWN FINE TO MEDIUM SAND
							0.40-2.60	GREY & DARK GREY FINE TO MEDIUM SAND WITH ORGANIC MATTER
							2.60-4.40	BLACK SILT-LIKE MATERIAL
404	4.2	0.00	5.80	5.30	4.30	FINE	0-0.33	GREY-BROWN FINE TO COARSE SAND
							0.00-0.50	BROWN FINE TO COARSE SAND
							0.50-0.80	BROWN FINE SAND
							0.80-2.60	GREY AND DARK GREY FINE TO MEDIUM SAND
							2.60-3.40	DARK GREY SILT-LIKE MATERIAL
							3.40-4.30	GREY FINE TO MEDIUM SAND
477	2.1	0.00	6.40	6.40	5.80	FINE	0-0.33	GREY-BROWN FINE SAND WITH ORGANIC MATTER
							0.00-1.10	DARK GREY TO GREY FINE SAND WITH ORGANIC MATTER
							1.10-2.70	BROWN FINE TO COARSE SAND
							2.70-3.10	GREY FINE TO COARSE SAND
							3.10-5.80	LIGET GREY-BROWN VERY FINE SAND

ALLIED PAPER, INC./PORTAGE CREEK/KALAMAZOO RIVER SUPERFUND SITE
TECHNICAL MEMORANDUM 10
SUMMARY OF SEDIMENT CHARACTERIZATION FIELD OBSERVATIONS

TRANSECT: KPT15		Date Collected: 08/16/93		River Width (ft): 124.0		Distance to Right Edge of Water (ft): 29		
Distance From Right Bank (ft)	Water Depth (ft)	Water Velocity (fps)	Sediment Depth (ft)	Sediment Penetrated (ft)	Sediment Recovered (ft)	Sediment Type	Interval (ft)	Description
40	2.1	1.50	0.90	1.00	0.90	COARSE	0-0.33	GREY-BROWN MEDIUM TO COARSE SAND AND GRAVEL, SOME FINE SAND
							0.00-0.20	BROWN COARSE SAND AND GRAVEL
							0.20-0.90	GREY-BROWN FINE TO COARSE SAND
60	2.8	2.30	1.40	1.50	0.70	COARSE	0-0.33	BROWN FINE TO COARSE SAND WITH GRAVEL
							0.00-0.70	BROWN & GREY FINE-COARSE SAND, SOME GRAVEL/GREY HARD CLAY
79	3.0	2.50	1.00	1.00	0.70	COARSE	0-0.33	GREY-BROWN FINE TO COARSE SAND AND GRAVEL
							0.00-0.20	BROWN COARSE SAND AND GRAVEL
							0.20-0.70	GREY-BROWN FINE-COARSE SAND, SOME POSSIBLE WHITE CLAY
101	3.7	2.75	4.10	3.90	3.10	COARSE	0-0.33	GREY-BROWN MEDIUM TO COARSE SAND AND GRAVEL
							0.00-1.30	GREY-BROWN FINE TO COARSE SAND
							1.30-3.10	LIGHT GREY-BROWN FINE TO VERY FINE SAND
119	4.7	2.40	3.30	4.80	3.00	COARSE	0-0.33	GREY-BROWN FINE TO COARSE SAND AND GRAVEL
							0.00-0.60	BROWN FINE TO COARSE SAND
							0.60-3.00	GREY FINE TO COARSE SAND
134	5.3	2.25	2.30	2.20	2.10	COARSE	0-0.33	GREY-BROWN FINE TO COARSE SAND AND GRAVEL
							0.00-0.80	BROWN FINE TO MEDIUM SAND WITH SOME GRAVEL
							0.80-1.20	BROWN VERY FINE SAND
							1.20-2.10	GREY-BROWN FINE TO COARSE SAND

ALLIED PAPER, INC./PORTAGE CREEK/KALAMASOO RIVER SUPERFUND SITE
 TECHNICAL MEMORANDUM 10
 SUMMARY OF SEDIMENT CHARACTERIZATION FIELD OBSERVATIONS

TRANSECT: KPT15		Date Collected: 08/16/93		River Width (ft): 124.0		Distance to Right Edge of Water (ft): 29		
Distance From Right Bank (ft)	Water Depth (ft)	Water Velocity (fps)	Sediment Depth (ft)	Sediment Penetrated (ft)	Sediment Recovered (ft)	Sediment Type	Interval (ft)	Description
144	2.8	1.50	1.90	1.80	1.10	COARSE	0-0.33	GREY-BROWN FINE TO COARSE SAND AND GRAVEL
							0.00-0.20	GREY-BROWN FINE TO COARSE SAND, SOME GRAVEL
							0.20-1.10	LIGHT GREY-BROWN FINE TO VERY FINE SAND

ALLIED PAPER, INC./PORTAGE CREEK/KALAMAZOO RIVER SUPERFUND SITE
 TECHNICAL MEMORANDUM 10
 SUMMARY OF SEDIMENT CHARACTERIZATION FIELD OBSERVATIONS

TRANSECT: KPT16		Date Collected: 08/17/93		River Width (ft): 92.0		Distance to Right Edge of Water (ft): 15		
Distance From Right Bank (ft)	Water Depth (ft)	Water Velocity (fps)	Sediment Depth (ft)	Sediment Penetrated (ft)	Sediment Recovered (ft)	Sediment Type	Interval (ft)	Description
23	1.8	0.00	1.20	1.10	0.90	COARSE	0-0.33	BROWN FINE TO MEDIUM SAND, SOME COARSE SAND, TRACE OF ORGANIC MATTER
							0.00-0.90	BROWN FINE TO COARSE SAND AND GRAVEL
41	4.7	0.00	2.20	1.90	1.40	COARSE	0-0.33	BROWN FINE TO COARSE SAND, SOME GRAVEL
							0.00-1.40	BROWN AND GREY-BROWN FINE TO COARSE SAND, SOME GRAVEL
55	6.0	0.00	2.10	1.80	1.30	COARSE	0-0.33	GREY-BROWN FINE TO COARSE SAND AND GRAVEL
							0.00-1.30	GREY-BROWN FINE AND VERY FINE TO COARSE SAND
67	7.0	0.00	1.90	1.90	1.50	COARSE	0-0.33	GREY-BROWN MEDIUM TO COARSE SAND AND GRAVEL
							0.00-0.60	GREY-BROWN MEDIUM TO COARSE SAND & GRAVEL, SOME ORGANICS
							0.60-1.50	LIGHT GREY-BROWN VERY FINE SAND
81	7.2	0.00	1.50	1.10	0.60	COARSE	0-0.33	GREY-BROWN MEDIUM TO COARSE SAND AND GRAVEL
							0.00-0.60	GREY-BROWN MEDIUM TO COARSE SAND AND GRAVEL
98	5.4	0.00	1.70	0.00	0.00	COARSE	0-0.33	DARK GREY FINE TO COARSE SAND AND GRAVEL

ALLIED PAPER, INC./PORTAGE CREEK/KALAMAZOO RIVER SUPERFUND SITE
TECHNICAL MEMORANDUM 10
SUMMARY OF SEDIMENT CHARACTERIZATION FIELD OBSERVATIONS

TRANSECT: KPT17		Date Collected: 08/17/93		River Width (ft): 128.0		Distance to Right Edge of Water (ft): 34		
Distance From Right Bank (ft)	Water Depth (ft)	Water Velocity (fps)	Sediment Depth (ft)	Sediment Penetrated (ft)	Sediment Recovered (ft)	Sediment Type	Interval (ft)	Description
44	0.9	0.00	3.30	3.30	2.00	FINE	0-0.33	GREY-BROWN FINE SAND WITH ORGANIC MATTER
							0.00-2.00	GREY-BROWN AND DARK GREY FINE SAND WITH BLACK SILT
59	3.7	0.00	3.50	3.50	2.70	COARSE	0-0.33	LIGHT GREY-BROWN FINE TO COARSE SAND AND GRAVEL
							0.00-0.40	GREY-BROWN FINE TO MEDIUM SAND, TRACE OF ORGANIC MATTER
							0.40-2.70	GREY-BROWN FINE TO COARSE SAND, SOME GRAVEL
73	5.2	0.00	3.50	3.50	2.90	COARSE	0-0.33	GREY-BROWN FINE TO COARSE SAND, SOME GRAVEL
							0.00-0.90	GREY-BROWN FINE TO MEDIUM SAND, SOME COARSE SAND & GRAVEL
							0.90-1.80	GREY-BROWN FINE TO COARSE SAND
							1.80-2.90	LIGHT GREY-BROWN FINE SAND
88	6.4	0.00	2.20	2.10	1.30	COARSE	0-0.33	BROWN FINE TO MEDIUM SAND, SOME COARSE SAND
							0.00-0.30	BROWN FINE TO MEDIUM SAND, SOME COARSE SAND
							0.30-0.70	GREY-BROWN FINE TO COARSE SAND, SOME GRAVEL
							0.70-1.30	LIGHT GREY-BROWN FINE TO VERY FINE SAND
105	5.5	0.00	2.60	2.30	1.20	COARSE	0-0.33	GREY-BROWN FINE TO COARSE SAND AND GRAVEL
							0.00-1.20	GREY-BROWN FINE TO COARSE SAND AND GRAVEL
121	5.7	0.00	1.40	1.40	0.60	COARSE	0-0.33	GREY-BROWN FINE TO MEDIUM SAND, SOME GRAVEL
							0.00-0.30	GREY-BROWN FINE TO MEDIUM SAND, SOME GRAVEL
							0.30-0.60	GREY-BROWN MEDIUM-COARSE SAND/GRAVEL, POSSIBLE WHITE CLAY
139	5.7	0.00	2.40	2.40	1.50	COARSE	0-0.33	GREY-BROWN FINE TO COARSE SAND, SOME GRAVEL
							0.00-1.50	GREY-BROWN FINE TO COARSE SAND, SOME GRAVEL

ALLIED PAPER, INC./PORTAGE CREEK/KALAMAZOO RIVER SUPERFUND SITE
 TECHNICAL MEMORANDUM 10
 SUMMARY OF SEDIMENT CHARACTERIZATION FIELD OBSERVATIONS

TRANSECT: KPT17		Date Collected: 08/17/93		River Width (ft): 128.0		Distance to Right Edge of Water (ft): 34		
Distance From Right Bank (ft)	Water Depth (ft)	Water Velocity (fps)	Sediment Depth (ft)	Sediment Penetrated (ft)	Sediment Recovered (ft)	Sediment Type	Interval (ft)	Description
150	3.2	0.00	1.80	1.80	0.80	COARSE	0-0.33	GREY-BROWN FINE TO COARSE SAND, SOME GRAVEL
							0.00-0.40	GREY-BROWN FINE TO MEDIUM SAND WITH GRAVEL
							0.40-0.80	GREY-BROWN MEDIUM TO COARSE SAND

ALLIED PAPER, INC./PORTAGE CREEK/KALAMAZOO RIVER SUPERFUND SITE
TECHNICAL MEMORANDUM 10
SUMMARY OF SEDIMENT CHARACTERIZATION FIELD OBSERVATIONS

TRANSECT: KPT18		Date Collected: 08/17/93		River Width (ft): 107.0		Distance to Right Edge of Water (ft): 43		
Distance From Right Bank (ft)	Water Depth (ft)	Water Velocity (fps)	Sediment Depth (ft)	Sediment Penetrated (ft)	Sediment Recovered (ft)	Sediment Type	Interval (ft)	Description
53	2.7	0.00	2.70	2.70	2.20	COARSE	0-0.33	GREY-BROWN FINE TO COARSE SAND AND GRAVEL
							0.00-2.20	GREY-BROWN FINE TO COARSE SAND, SOME GRAVEL
70	3.5	0.00	2.50	2.50	1.20	COARSE	0-0.33	GREY-BROWN FINE TO MEDIUM SAND WITH SOME COARSE SAND, ORGANIC MATTER, & SILT
							0.00-1.20	GREY-BROWN FINE-COARSE SAND, SOME SILT/ORGANICS/CLAY
85	3.1	0.00	1.90	1.60	1.10	COARSE	0-0.33	GREY-BROWN MEDIUM TO COARSE SAND AND GRAVEL, SOME POSSIBLE WHITE HARD CLAY
							0.00-1.10	GREY-BROWN FINE TO COARSE SAND, SOME GRAVEL, TRACE CLAY
99	3.2	0.00	3.70	3.70	3.50	COARSE	0-0.33	GREY-BROWN MEDIUM TO COARSE SAND AND GRAVEL WITH SOME WHITE HARD CLAY
							0.00-0.30	BROWN FINE TO COARSE SAND
							0.30-1.10	GREY-BROWN FINE TO COARSE SAND WITH SOME WHITE HARD CLAY
							1.10-3.50	LIGHT GREY-BROWN FINE AND VERY FINE SAND
112	3.7	0.00	2.10	1.60	1.00	FINE	0-0.33	GREY-BROWN FINE TO COARSE SAND, SOME GRAVEL, TRACE GREY CLAY-LIKE MATERIAL
							0.00-1.00	BROWN & GREY-BROWN FINE-COARSE SAND, SOME GRAVEL & CLAY
127	3.6	0.00	1.70	0.00	0.00	COARSE	0-0.33	GREY-BROWN FINE TO MEDIUM SAND WITE A LOT OF ANGULAR GRAVEL AND RUBBLE
142	3.5	0.00	1.50	1.50	0.80	COARSE	0-0.33	GREY-BROWN FINE TO COARSE SAND AND GRAVEL
							0.00-0.40	GREY-BROWN FINE TO COARSE SAND AND GRAVEL
							0.40-0.80	GREY-BROWN FINE SAND

ALLIED PAPER, INC./PORTAGE CREEK/KALAMAZOO RIVER SUPERFUND SITE
TECHNICAL MEMORANDUM 10
SUMMARY OF SEDIMENT CHARACTERIZATION FIELD OBSERVATIONS

TRANSECT: KPT19		Date Collected: 08/18/93		River Width (ft): 160.0		Distance to Right Edge of Water (ft): 8		
Distance From Right Bank (ft)	Water Depth (ft)	Water Velocity (fps)	Sediment Depth (ft)	Sediment Penetrated (ft)	Sediment Recovered (ft)	Sediment Type	Interval (ft)	Description
18	2.0	0.12	7.70	6.50	3.50	FINE	0-0.33	DARK GREY SILT, TRACE OF FINE SAND, STRONG ORGANIC ODOR
							0.00-1.60	DARK GREY SILT, ORGANIC MATTER AND SOME GREY CLAY
							1.60-3.10	GREY FINE TO COARSE SAND
							3.10-3.50	GREY FINE SAND
38	3.9	0.20	6.30	5.70	2.40	FINE	0-0.33	DARK GREY SILT AND FINE SAND, STRONG ORGANIC ODOR
							0.00-0.70	DARK GREY FINE SAND AND SILT, SOME ORGANIC MATTER
							0.70-2.40	DARK GREY TO BLACK SILT & ORGANIC MATTER, SOME FINE SAND
59	3.5	0.40	6.40	6.00	4.70	FINE	0-0.33	GREY-BROWN FINE-MEDIUM SAND, TRACE ORGANIC MATTER, VERY SLIGHT ORGANIC ODOR
							0.00-3.20	GREY FINE TO MEDIUM SAND
							3.20-4.70	DARK GREY TO BLACK SILT-LIKE MATERIAL
79	4.0	0.87	7.10	7.10	5.60	FINE	0-0.33	GREY-BROWN FINE TO MEDIUM SAND
							0.00-3.30	GREY-BROWN FINE TO MEDIUM SAND
							3.30-5.60	GREY AND DARK GREY SILT-LIKE MATERIAL, POSSIBLE CLAY
98	4.6	0.85	7.20	7.20	6.00	FINE	0-0.33	GREY-BROWN FINE TO MEDIUM SAND
							0.00-3.00	GREY-BROWN FINE TO MEDIUM SAND, TRACE OF ORGANIC MATTER
							3.00-5.00	DARK GREY SILT, ORGANIC MATTER, AND FINE SAND
							5.00-6.00	GREY CLAY-LIKE MATERIAL WITH SOME FINE SAND
119	5.0	1.05	6.50	6.00	4.80	FINE	0-0.33	GREY-BROWN FINE TO MEDIUM SAND WITH ORGANIC MATTER
							0.00-4.00	GREY-BROWN FINE TO MEDIUM SAND, SOME COARSE SAND
							4.00-4.80	GREY FINE SAND

ALLIED PAPER, INC./PORTAGE CREEK/KALAMAZOO RIVER SUPERFUND SITE
 TECHNICAL MEMORANDUM 10
 SUMMARY OF SEDIMENT CHARACTERIZATION FIELD OBSERVATIONS

TRANSECT: KPT19		Date Collected: 08/18/93		River Width (ft): 160.0		Distance to Right Edge of Water (ft): 0		
Distance From Right Bank (ft)	Water Depth (ft)	Water Velocity (fps)	Sediment Depth (ft)	Sediment Penetrated (ft)	Sediment Recovered (ft)	Sediment Type	Interval (ft)	Description
139	5.5	0.90	4.50	4.30	3.40	COARSE	0-0.33	GREY-BROWN MEDIUM TO COARSE SAND, SOME GRAVEL
							0.00-3.40	GREY-BROWN MEDIUM TO COARSE SAND, SOME FINE SAND & GRAVEL
158	4.6	0.08	5.00	3.70	2.90	COARSE	0-0.33	GREY-BROWN FINE-COARSE SAND, DEBRIS, RUBBLE, SOME ORGANICS WITH SLIGHT ODOR
							0.00-0.50	GREY-BROWN FINE TO COARSE SAND, DEBRIS, RUBBLE, ORGANICS
							0.50-2.90	GREY-BROWN SILT WITH ORGANIC MATTER

ALLIED PAPER, INC./PORTAGE CREEK/KALAMAZOO RIVER SUPERFUND SITE
 TECHNICAL MEMORANDUM 10
 SUMMARY OF SEDIMENT CHARACTERIZATION FIELD OBSERVATIONS

TRANSECT: KPT20		Date Collected: 08/18/93		River Width (ft): 155.0		Distance to Right Edge of Water (ft): 9		
Distance From Right Bank (ft)	Water Depth (ft)	Water Velocity (fps)	Sediment Depth (ft)	Sediment Penetrated (ft)	Sediment Recovered (ft)	Sediment Type	Interval (ft)	Description
18	2.0	0.00	2.70	2.50	1.80	COARSE	0-0.33	DARK GREY FINE TO COARSE SAND WITH GRAVEL AND ORGANIC MATTER
							0.00-1.80	DARK GREY & GREY FINE-COARSE SAND, GRAVEL, ORGANIC MATTER
37	4.9	0.00	2.00	1.70	1.00	COARSE	0-0.33	GREY-BROWN FINE SAND WITH GRAVEL AND ORGANIC MATTER
							0.00-0.60	GREY-BROWN FINE SAND WITH SOME GRAVEL AND ORGANIC MATTER
							0.60-1.00	LIGHT GREY-BROWN FINE AND VERY FINE SAND
55	5.2	0.00	1.40	1.40	1.20	COARSE	0-0.33	GREY-BROWN FINE TO MEDIUM SAND, SOME COARSE SAND
							0.00-0.50	GREY-BROWN FINE TO MEDIUM SAND
							0.50-1.20	GREY VERY FINE SANDY CLAY
75	5.3	0.00	2.20	1.40	1.20	COARSE	0-0.33	BROWN FINE TO COARSE SAND, SOME GRAVEL
							0.00-0.70	GREY-BROWN FINE TO COARSE SAND, SOME GRAVEL
							0.70-1.10	GREY-BROWN MEDIUM TO COARSE SAND
							1.10-1.20	GREY VERY FINE SANDY CLAY
93	5.0	0.00	1.30	1.30	1.00	COARSE	0-0.33	GREY-BROWN FINE TO COARSE SAND AND GRAVEL
							0.00-0.90	GREY-BROWN FINE TO COARSE SAND AND GRAVEL
							0.90-1.00	GREY VERY FINE SANDY CLAY
112	5.0	0.00	1.00	0.80	0.70	COARSE	0-0.33	GREY-BROWN FINE TO COARSE SAND
							0.00-0.70	GREY-BROWN AND DARK GREY FINE TO COARSE SAND
132	5.2	0.00	1.50	1.20	0.60	COARSE	0-0.33	GREY-BROWN FINE TO COARSE SAND
							0.00-0.60	GREY-BROWN AND DARK GREY FINE TO COARSE SAND

ALLIED PAPER, INC./PORTAGE CREEK/KALAMASOO RIVER SUPERFUND SITE
 TECHNICAL MEMORANDUM 10
 SUMMARY OF SEDIMENT CHARACTERIZATION FIELD OBSERVATIONS

TRANSECT: KPT20		Date Collected: 08/18/93		River Width (ft): 155.0		Distance to Right Edge of Water (ft): 9		
Distance From Right Bank (ft)	Water Depth (ft)	Water Velocity (fps)	Sediment Depth (ft)	Sediment Penetrated (ft)	Sediment Recovered (ft)	Sediment Type	Interval (ft)	Description
156	1.8	0.00	2.00	1.10	0.90	COARSE	0-0.33	DARK GREY SILT, COARSE SAND, DEBRIS, AND RUBBLE WITH A STRONG CHEMICAL ODOR
							0.00-0.90	DARK GREY SILT, SOME FINE SAND

ALLIED PAPER, INC./PORTAGE CREEK/KALAMASOO RIVER SUPERFUND SITE
TECHNICAL MEMORANDUM 10
SUMMARY OF SEDIMENT CHARACTERIZATION FIELD OBSERVATIONS

TRANSECT: KPT21		Date Collected: 08/18/93		River Width (ft): 143.0		Distance to Right Edge of Water (ft): 6		
Distance From Right Bank (ft)	Water Depth (ft)	Water Velocity (fps)	Sediment Depth (ft)	Sediment Penetrated (ft)	Sediment Recovered (ft)	Sediment Type	Interval (ft)	Description
10	1.8	0.00	1.50	1.50	1.30	FINE	0-0.33	GREY FINE SAND AND SILT WITH A STRONG ORGANIC ODOR
							0.00-0.80	GREY FINE SAND AND SILT
							0.80-1.30	GREY FINE SAND AND HARD GREY CLAY-LIKE MATERIAL
30	5.4	0.00	2.40	2.30	1.70	COARSE	0-0.33	GREY BROWN FINE SAND WITH SOME COARSE SAND AND GRAVEL
							0.00-1.70	GREY-BROWN & DARK GREY FINE SAND, SOME COARSE SAND/GRAVEL
51	6.9	0.00	1.20	1.20	0.90	COARSE	0-0.33	GREY-BROWN FINE TO COARSE SAND AND GRAVEL
							0.00-0.30	GREY-BROWN FINE TO COARSE SAND AND GRAVEL
							0.30-0.90	LIGHT GREY-BROWN FINE AND VERY FINE SAND ON TOP OF GRAVEL
72	7.2	0.00	0.50	0.50	0.00	COARSE	0-0.33	GREY-BROWN FINE TO COARSE SAND AND GRAVEL
96	4.8	0.00	2.70	2.00	1.50	COARSE	0-0.33	GREY-BROWN FINE TO COARSE SAND AND GRAVEL
							0.00-1.50	GREY-BROWN FINE TO COARSE SAND AND GRAVEL
117	4.2	0.00	3.20	3.20	1.90	COARSE	0-0.33	GREY-BROWN FINE TO COARSE SAND, SOME ORGANIC MATTER
							0.00-1.40	GREY-BROWN FINE TO COARSE SAND
							1.40-1.90	DARK GREY FINE TO MEDIUM SAND
136	2.2	0.00	4.20	4.20	2.60	FINE	0-0.33	DARK GREY FINE SAND, SOME COARSE SAND & ORGANIC MATTER, STRONG ORGANIC ODOR
							0.00-1.20	DARK GREY FINE SAND, SOME COARSE SAND AND ORGANIC MATTER
							1.20-1.90	DARK GREY TO BLACK SILT-LIKE MATERIAL
							1.90-2.60	DARK GREY FINE SAND

ALLIED PAPER, INC./PORTAGE CREEK/KALAMAZOO RIVER SUPERFUND SITE
TECHNICAL MEMORANDUM 10
SUMMARY OF SEDIMENT CHARACTERIZATION FIELD OBSERVATIONS

TRANSECT: KPT22		Date Collected: 08/18/93		River Width (ft): 141.0		Distance to Right Edge of Water (ft): 9		
Distance From Right Bank (ft)	Water Depth (ft)	Water Velocity (fps)	Sediment Depth (ft)	Sediment Penetrated (ft)	Sediment Recovered (ft)	Sediment Type	Interval (ft)	Description
18	5.3	0.00	3.00	3.00	1.50	FINE	0-0.33	DARK GREY SILT, FINE SAND AND ORGANIC MATTER, STRONG ORGANIC ODOR
							0.00-0.20	GREY FINE SAND AND ORGANIC MATTER
							0.20-1.50	DARK GREY & GREY-BROWN SILT-LIKE MATERIAL (POSSIBLE CLAY)
40	7.6	0.00	0.70	0.70	0.50	COARSE	0-0.33	DARK GREY FINE TO COARSE SAND AND GRAVEL, MODERATE ORGANIC ODOR
							0.00-0.50	GREY-BROWN AND DARK GREY FINE TO COARSE SAND AND GRAVEL
60	8.1	0.00	1.00	0.00	0.00	COARSE	0-0.33	GREY-BROWN MEDIUM TO COARSE SAND AND GRAVEL, SOME FINE SAND
82	7.7	0.00	2.00	1.60	0.90	COARSE	0-0.33	GREY-BROWN FINE TO COARSE SAND AND GRAVEL
							0.00-0.90	GREY-BROWN FINE TO COARSE SAND AND GRAVEL
102	6.0	0.00	2.40	2.30	1.90	COARSE	0-0.33	GREY-BROWN FINE TO COARSE SAND
							0.00-1.00	GREY-BROWN FINE TO COARSE SAND
							1.00-1.50	DARK GREY FINE TO COARSE SAND, SOME SILT & ORGANIC MATTER
							1.50-1.90	GREY-BROWN FINE TO MEDIUM SAND
123	5.9	0.00	2.60	2.10	1.50	FINE	0-0.33	GREY-BROWN FINE SAND
							0.00-0.50	GREY-BROWN FINE SAND
							0.50-1.20	GREY SILT
							1.20-1.50	GREY-BROWN FINE SAND
147	2.2	0.00	4.40	4.40	3.20	FINE	0-0.33	DARK GREY SILT WITH FINE SAND, STRONG ORGANIC ODOR
							0.00-0.90	DARK GREY SILT WITH FINE SAND
							0.90-1.40	GREY FINE TO MEDIUM SAND
							1.40-3.20	GREY-BROWN & ORANGE-BROWN FINE TO COARSE SAND, SOME CLAY

ALLIED PAPER, INC./PORTAGE CREEK/KALAMAIOO RIVER SUPERFUND SITE
TECHNICAL MEMORANDUM 10
SUMMARY OF SEDIMENT CHARACTERIZATION FIELD OBSERVATIONS

TRANSECT: KPT23		Date Collected: 08/19/93		River Width (ft): 154.0		Distance to Right Edge of Water (ft): 9		
Distance From Right Bank (ft)	Water Depth (ft)	Water Velocity (fps)	Sediment Depth (ft)	Sediment Penetrated (ft)	Sediment Recovered (ft)	Sediment Type	Interval (ft)	Description
19	4.4	0.00	0.90	1.10	0.70	FINE	0-0.33	DARK GREY FINE TO COARSE SAND, SILT, WITH A STRONG ORGANIC ODOR
							0.00-0.10	GREY-BROWN FINE TO COARSE SAND
							0.10-0.70	DARK GREY SILT, WITH A STRONG ORGANIC ODOR
41	9.8	0.25	1.00	1.00	0.70	FINE	0-0.33	GREY-BROWN & DARK GREY SILT, FINE SAND, ORGANICS, MODERATE ORGANIC ODOR
							0.00-0.70	GREY-BROWN & DARK GREY FINE SAND, SILT & ORGANIC MATTER
64	10.7	0.40	0.30	0.30	0.00	COARSE	0-0.33	GREY-BROWN MEDIUM TO COARSE SAND AND GRAVEL
84	10.6	0.75	1.20	1.20	0.60	COARSE	0-0.33	GREY-BROWN FINE TO COARSE SAND AND GRAVEL
							0.00-0.60	GREY-BROWN FINE TO COARSE SAND BETWEEN GRAVEL AND ROCKS
105	9.0	0.75	1.70	1.70	1.40	FINE	0-0.33	GREY-BROWN FINE SAND, SOME MEDIUM SAND
							0.00-1.40	GREY-BROWN FINE-MEDIUM SAND, SOME SILT & ORGANIC MATTER
124	8.0	0.60	2.80	2.80	1.70	FINE	0-0.33	GREY-BROWN FINE TO MEDIUM SAND WITH A LOT OF ORGANIC MATTER
							0.00-1.70	GREY-BROWN FINE TO MEDIUM SAND WITH SOME ORGANIC MATTER
157	2.5	0.05	5.00	4.00	2.90	FINE	0-0.33	DARK GREY-BLACK SILT, SOME FINE SAND & ORGANIC MATTER, STRONG ORGANIC ODOR
							0.00-1.00	DARK GREY SILT WITH FINE SAND
							1.00-2.90	GREY FINE AND VERY FINE SAND

ALLIED PAPER, INC./PORTAGE CREEK/KALAMAZOO RIVER SUPERFUND SITE
TECHNICAL MEMORANDUM 10
SUMMARY OF SEDIMENT CHARACTERIZATION FIELD OBSERVATIONS

TRANSECT: KPT24		Date Collected: 08/19/93		River Width (ft): 200.0		Distance to Right Edge of Water (ft): 9		
Distance From Right Bank (ft)	Water Depth (ft)	Water Velocity (fps)	Sediment Depth (ft)	Sediment Penetrated (ft)	Sediment Recovered (ft)	Sediment Type	Interval (ft)	Description
18	1.2	0.00	2.80	2.80	1.90	FINE	0-0.33	GREY-BROWN SILT, SOME FINE SAND AND ORGANIC MATTER
							0.00-1.20	GREY-BROWN SILT, SOME FINE SAND AND ORGANIC MATTER
							1.20-1.90	GREY FINE AND VERY FINE SAND
43	2.8	0.00	2.20	2.00	1.90	COARSE	0-0.33	GREY-BROWN FINE TO COARSE SAND AND GRAVEL
							0.00-1.00	GREY-BROWN FINE TO COARSE SAND, SOME GRAVEL
							1.00-1.90	BROWN FINE TO MEDIUM SAND
67	2.8	0.00	2.50	2.50	1.60	COARSE	0-0.33	GREY-BROWN FINE TO COARSE SAND AND GRAVEL
							0.00-0.50	GREY-BROWN FINE TO COARSE SAND AND GRAVEL
							0.50-1.60	GREY-BROWN FINE TO MEDIUM SAND
93	3.0	0.00	0.50	0.50	0.00	COARSE	0-0.33	GREY-BROWN FINE TO COARSE SAND AND GRAVEL ON TOP OF LARGER GRAVEL AND ROCKS
119	3.0	0.00	1.10	1.10	1.00	COARSE	0-0.33	GREY-BROWN FINE TO COARSE SAND AND GRAVEL
							0.00-1.00	GREY-BROWN FINE TO COARSE SAND AND GRAVEL
143	2.6	0.00	1.40	1.30	0.80	COARSE	0-0.33	GREY-BROWN FINE TO COARSE SAND AND GRAVEL
							0.00-0.50	GREY-BROWN FINE TO COARSE SAND AND GRAVEL
							0.50-0.80	GREY-BROWN FINE TO MEDIUM SAND
168	3.0	0.00	2.30	2.10	1.00	COARSE	0-0.33	GREY-BROWN FINE TO COARSE SAND AND GRAVEL
							0.00-0.60	GREY-BROWN FINE TO COARSE SAND AND GRAVEL
							0.60-1.00	GREY FINE SAND

ALLIED PAPER, INC./PORTAGE CREEK/KALAMAZOO RIVER SUPERFUND SITE
TECHNICAL MEMORANDUM 10
SUMMARY OF SEDIMENT CHARACTERIZATION FIELD OBSERVATIONS

TRANSECT: KPT24		Date Collected: 08/19/93		River Width (ft): 200.0		Distance to Right Edge of Water (ft): 9		
Distance From Right Bank (ft)	Water Depth (ft)	Water Velocity (fps)	Sediment Depth (ft)	Sediment Penetrated (ft)	Sediment Recovered (ft)	Sediment Type	Interval (ft)	Description
202	2.5	0.00	3.60	3.60	2.90	COARSE	0-0.33	GREY FINE TO COARSE SAND AND GRAVEL, STRONG ORGANIC ODOR
							0.00-0.20	GREY-BROWN FINE SAND WITH ORGANIC MATTER
							0.20-0.80	DARK GREY SILT, FINE SAND AND ORGANIC MATTER
							0.80-2.90	GREY-BROWN FINE TO COARSE SAND

ALLIED PAPER, INC./PORTAGE CREEK/KALAMAZOO RIVER SUPERFUND SITE
TECHNICAL MEMORANDUM 10
SUMMARY OF SEDIMENT CHARACTERIZATION FIELD OBSERVATIONS

TRANSECT: KPT25		Date Collected: 08/19/93		River Width (ft): 165.0		Distance to Right Edge of Water (ft): 5		
Distance From Right Bank (ft)	Water Depth (ft)	Water Velocity (fps)	Sediment Depth (ft)	Sediment Penetrated (ft)	Sediment Recovered (ft)	Sediment Type	Interval (ft)	Description
14	1.2	0.00	1.20	0.80	0.50	COARSE	0-0.33	GREY-BROWN FINE TO COARSE SAND AND GRAVEL, PIECES OF WOOD, DEBRIS, & RUBBLE
							0.00-0.50	GREY-BROWN FINE TO COARSE SAND, SILT AND ORGANIC MATTER
35	3.9	0.00	1.10	1.10	0.00	COARSE	0-0.33	GREY-BROWN FINE TO MEDIUM SAND, SOME GRAVEL, ON TOP OF ROCKS
56	5.1	0.00	0.90	0.90	0.00	COARSE	0-0.33	GREY-BROWN FINE TO COARSE SAND AND GRAVEL ON TOP OF ROCKS
76	4.2	0.00	1.10	0.80	0.30	COARSE	0-0.33	WHITE HARD CLAY-LIKE MATERIAL WITH SOME GREY-BROWN COARSE SAND AND GRAVEL
							0.00-0.30	WHITE HARD CLAY-LIKE MATERIAL, SOME COARSE SAND & GRAVEL
98	2.9	0.00	3.60	1.50	0.90	COARSE	0-0.33	WHITE HARD CLAY-LIKE MATERIAL, SOME GREY PAPER FINE SAND, ORGANICS, & WOOD
							0.00-0.90	WHITE & GREY HARD CLAY, SOME GREY-BROWN FINE-COARSE SAND
117	2.8	0.00	3.90	3.40	2.00	COARSE	0-0.33	WHITE HARD CLAY-LIKE MATERIAL WITH SOME GREY-BROWN COARSE SAND AND GRAVEL
							0.00-2.00	WHITE & GREY HARD CLAY, SOME FINE-COARSE SAND & GRAVEL
137	3.0	0.00	3.00	2.50	1.70	COARSE	0-0.33	GREY-BROWN FINE TO COARSE SAND AND GRAVEL AND WHITE HARD CLAY-LIKE MATERIAL
							0.00-1.70	WHITE & GREY HARD CLAY, SOME FINE-COARSE SAND & GRAVEL
159	2.0	0.00	4.50	3.50	2.70	FINE	0-0.33	GREY-BROWN SILT, FINE SAND, SOME ORGANIC MATTER, VERY STRONG ORGANIC ODOR
							0.00-0.80	GREY-BROWN SILT, FINE SAND, AND CLAY-LIKE MATERIAL
							0.80-2.70	GREY FINE TO COARSE SAND, CLAY-LIKE MATERIAL (SOME HARD)

ALLIED PAPER, INC./PORTAGE CREEK/KALAMAZOO RIVER SUPERFUND SITE
TECHNICAL MEMORANDUM 10
SUMMARY OF SEDIMENT CHARACTERIZATION FIELD OBSERVATIONS

TRANSECT: KPT26		Date Collected: 08/24/93		River Width (ft): 109.0		Distance to Right Edge of Water (ft): 0		
Distance From Right Bank (ft)	Water Depth (ft)	Water Velocity (fps)	Sediment Depth (ft)	Sediment Penetrated (ft)	Sediment Recovered (ft)	Sediment Type	Interval (ft)	Description
14	1.3	1.58	2.00	1.60	1.40	COARSE	0-0.33	BROWN FINE TO COARSE SAND AND GRAVEL, TRACE ORGANICS
							0.00-0.10	GRAVEL
							0.10-0.30	BROWN FINE TO COARSE SAND
							0.30-1.30	BLACK TO DARK GREY FINE TO MEDIUM SAND, TRACE GRAVEL
							1.30-1.40	LIGHT GREY COARSE CONSOLIDATED SAND, CONCRETE
42	2.3	1.46	1.20	1.20	0.90	COARSE	0-0.33	BROWN FINE TO COARSE SAND WITH GRAVEL
							0.00-0.20	WASTE CONCRETE, CONSOLIDATED GRAVEL
							0.20-0.70	BROWN FINE TO MEDIUM SAND
							0.70-0.90	GREY TO BROWN FINE TO MEDIUM SAND, TRACE GREY SILT/CLAY
71	2.7	0.46	0.70	0.60	0.60	COARSE	0-0.33	BROWN FINE TO COARSE SAND, GRAVEL, WASTE CONCRETE
							0.00-0.30	BROWN FINE TO COARSE SAND AND GRAVEL
							0.30-0.60	LIGHT GREY TO GREY FINE-COARSE SAND, GRAVEL, TRACE SILT
106	2.2	0.19	1.00	1.00	0.50	FINE	0-0.33	DARK BROWN FINE SAND WITH SILT, DEAD VEGETATION, GRAVEL
							0.00-0.10	FINE SAND AND SILT, BROWN, VEGETATION
							0.10-0.50	BROWN TO GREY FINE TO COARSE SAND
33	1.5	0.20	2.70	1.50	1.20	FINE	0-0.33	DARK BROWN FINE SAND WITH SILT, DEAD VEGETATION
							0.00-0.60	DARK BROWN FINE SAND WITH SILT, VEGETATION
							0.60-1.20	BROWN FINE-COARSE SAND/SOME GRAVEL,ORANGE-BROWN SAND,SILT
75	4.1	2.30	0.40	0.00	0.00	COARSE	0-0.33	LIGET BROWN FINE-MEDIUM SAND, GRAVEL & WHITE HARD CRUMBLY MATERIAL (CALCIUM)

ALLIED PAPER, INC./PORTAGE CREEK/KALAMAZOO RIVER SUPERFUND SITE
 TECHNICAL MEMORANDUM 10
 SUMMARY OF SEDIMENT CHARACTERISATION FIELD OBSERVATIONS

TRANSECT: KPT26		Date Collected: 08/24/93		River Width (ft): 152.0		Distance to Right Edge of Water (ft): 0		
Distance From Right Bank (ft)	Water Depth (ft)	Water Velocity (fps)	Sediment Depth (ft)	Sediment Penetrated (ft)	Sediment Recovered (ft)	Sediment Type	Interval (ft)	Description
119	2.7	2.10	2.40	2.40	1.20	COARSE	0-0.33	ORANGE-BROWN MEDIUM TO COARSE SAND AND GRAVEL, ORANGE FINE SAND
							0.00-1.20	ORANGE-BROWN MEDIUM-COARSE SAND/GRAVEL, ORANGE FINE SAND
165	1.3	0.51	0.30	0.00	0.00	FINE	0-0.33	DARK BROWN FINE TO MEDIUM SAND, DEAD VEGETATION

ALLIED PAPER, INC./PORTAGE CREEK/KALAMAZOO RIVER SUPERFUND SITE
TECHNICAL MEMORANDUM 10
SUMMARY OF SEDIMENT CHARACTERIZATION FIELD OBSERVATIONS

TRANSECT: KPT27		Date Collected: 08/24/93		River Width (ft): 272.0		Distance to Right Edge of Water (ft): 43		
Distance From Right Bank (ft)	Water Depth (ft)	Water Velocity (fps)	Sediment Depth (ft)	Sediment Penetrated (ft)	Sediment Recovered (ft)	Sediment Type	Interval (ft)	Description
54	0.6	0.00	2.50	2.30	1.40	FINE	0-0.33	DARK BROWN SILT, SOME FINE SAND, ORGANIC MATTER
							0.00-0.70	DARK BROWN SILT, SOME FINE SAND, ORGANIC MATTER
							0.70-1.40	BROWN TO TAN FINE TO MEDIUM SAND, SOME GRAVEL, TRACE SILT
90	1.3	0.00	1.40	1.40	1.20	FINE	0-0.33	DARK BROWN SILT AND FINE SAND, SOME ORGANIC MATTER
							0.00-0.40	DARK BROWN SILT AND FINE SAND, SOME ORGANIC MATTER
							0.40-0.60	BROWN FINE TO MEDIUM SAND, TRACE SILT
							0.60-1.30	TAN TO BROWN FINE TO MEDIUM SAND, TRACE SILT
128	2.5	0.00	1.30	1.30	1.10	FINE	0-0.33	TAN TO BROWN FINE TO COARSE SAND, TRACE GRAVEL
							0.00-1.10	TAN TO BROWN FINE TO COARSE SAND, TRACE GRAVEL
164	2.5	0.00	0.80	0.70	0.45	COARSE	0-0.33	BROWN FINE TO COARSE SAND WITH GRAVEL
							0.00-0.45	BROWN FINE TO COARSE SAND
201	3.2	0.00	0.40	0.40	0.40	COARSE	0-0.33	BROWN FINE TO COARSE SAND WITH GRAVEL
							0.00-0.40	BROWN FINE TO COARSE SAND WITH GRAVEL
238	4.0	0.00	2.50	2.50	1.60	COARSE	0-0.33	TAN FINE TO COARSE SAND WITH GRAVEL, HARD WHITE ROCK MATERIAL
							0.00-1.60	TAN FINE TO COARSE SAND, GRAVEL, HARD WHITE ROCK MATERIAL
274	3.5	0.00	1.60	1.40	1.10	COARSE	0-0.33	BROWN TO TAN FINE TO COARSE SAND WITH GRAVEL, WHITE HARD ROCK MATERIAL
							0.00-0.10	ROCK
							0.10-0.30	BROWN TO TAN FINE TO COARSE SAND
							0.30-1.10	TAN/WHITE SAND, HARD CRUMBLY ROCK MATERIAL

ALLIED PAPER, INC./PORTAGE CREEK/KALAMAZOO RIVER SUPERFUND SITE
 TECHNICAL MEMORANDUM 10
 SUMMARY OF SEDIMENT CHARACTERISATION FIELD OBSERVATIONS

TRANSECT: KPT27		Date Collected: 08/24/93		River Width (ft): 272.0		Distance to Right Edge of Water (ft): 43		
Distance From Right Bank (ft)	Water Depth (ft)	Water Velocity (fps)	Sediment Depth (ft)	Sediment Penetrated (ft)	Sediment Recovered (ft)	Sediment Type	Interval (ft)	Description
306	2.1	0.00	1.40	1.40	0.90	FINE	0-0.33	DARK BROWN FINE SAND, TRACE OF SILT, ORGANIC MATTER
							0.00-0.50	DARK BROWN TO BLACK FINE SAND, SOME SILT & ORGANIC MATTER
							0.50-0.90	DARK BROWN FINE TO COARSE SAND WITH GRAVEL

ALLIED PAPER, INC./PORTAGE CREEK/KALAMAZOO RIVER SUPERFUND SITE
TECHNICAL MEMORANDUM 10
SUMMARY OF SEDIMENT CHARACTERISATION FIELD OBSERVATIONS

TRANSECT: KPT28		Date Collected: 08/24/93		River Width (ft): 243.0		Distance to Right Edge of Water (ft): 17		
Distance From Right Bank (ft)	Water Depth (ft)	Water Velocity (fps)	Sediment Depth (ft)	Sediment Penetrated (ft)	Sediment Recovered (ft)	Sediment Type	Interval (ft)	Description
27	0.6	0.00	3.40	3.40	2.00	FINE	0-0.33	BROWN SILT WITH ORGANIC MATTER
							0.00-0.70	BROWN SILT AND ORGANIC MATTER
							0.70-0.80	ROCK AND BROWN SILT
							0.80-2.00	BROWN TO ORANGE-BROWN FINE TO COARSE SAND, SOME GRAVEL
59	2.6	0.00	2.40	2.40	1.40	COARSE	0-0.33	BROWN FINE TO COARSE SAND, SOME GRAVEL, WHITE HARD CRUMBLY ROCK MATERIAL
							0.00-0.30	WHITE HARD CRUMBLY ROCK MATERIAL
							0.30-1.40	TAN TO ORANGE-BROWN FINE-COARSE SAND, TRACE GRAVEL/SILT
90	2.5	0.00	2.80	1.90	1.30	COARSE	0-0.33	BROWN FINE TO COARSE SAND, SOME GRAVEL
							0.00-0.10	WHITE CRUMBLY HARD ROCK MATERIAL
							0.10-1.30	TAN FINE-COARSE SAND/GRAVEL, TRACE SILT, CRUMBLY MATERIAL
122	2.5	0.00	2.70	2.20	1.80	COARSE	0-0.33	BROWN FINE TO COARSE SAND, SOME GRAVEL
							0.00-0.50	SHELL WITH WHITE HARD CRUMBLY MATERIAL
							0.50-1.40	BROWN FINE TO COARSE SAND, SOME GRAVEL, TRACE SILT
							1.40-1.80	GREY-BROWN COARSE SAND/GRAVEL/WHITE CRUMBLY MATERIAL/SILT
154	2.8	0.00	4.50	3.70	2.70	COARSE	0-0.33	BROWN FINE TO COARSE SAND, SOME GRAVEL
							0.00-1.70	BROWN TO GREY FINE TO COARSE SAND
							1.70-2.70	TAN-GREY FINE-COARSE SAND, HARD WHITE CRUMBLY MATERIAL
187	2.6	0.00	2.60	2.60	1.30	COARSE	0-0.33	GREY TO BROWN FINE TO COARSE SAND WITH GRAVEL, HARD WHITE CRUMBLY MATERIAL
							0.00-1.30	GREY TO BROWN FINE TO COARSE SAND

ALLIED PAPER, INC./PORTAGE CREEK/KALAMAZOO RIVER SUPERFUND SITE
TECHNICAL MEMORANDUM 10
SUMMARY OF SEDIMENT CHARACTERIZATION FIELD OBSERVATIONS

TRANSECT: KPT28		Date Collected: 08/24/93		River Width (ft): 243.0		Distance to Right Edge of Water (ft): 17		
Distance From Right Bank (ft)	Water Depth (ft)	Water Velocity (fps)	Sediment Depth (ft)	Sediment Penetrated (ft)	Sediment Recovered (ft)	Sediment Type	Interval (ft)	Description
220	2.9	0.00	4.50	4.50	3.60	COARSE	0-0.33	GREY TO BROWN FINE TO COARSE SAND, SOME GRAVEL, WHITE HARD CRUMBLY MATERIAL
							0.00-3.60	GREY-BROWN FINE-COARSE SAND, TRACE SILT/WHITE HARD MATTER
251	1.2	0.00	2.70	2.00	1.30	FINE	0-0.33	DARK BROWN FINE SAND WITH SILT AND ORGANIC MATTER
							0.00-0.60	DARK BROWN FINE SAND WITH SILT AND ORGANIC MATTER
							0.60-1.30	DARK GREY FINE SAND, SILT, GRAVEL, HARD CRUMBLY MATERIAL

ALLIED PAPER, INC./PORTAGE CREEK/KALAMAZOO RIVER SUPERFUND SITE
TECHNICAL MEMORANDUM 10
SUMMARY OF SEDIMENT CHARACTERIZATION FIELD OBSERVATIONS

TRANSECT: KPT29		Date Collected: 08/25/93		River Width (ft): 183.0		Distance to Right Edge of Water (ft): 11		
Distance From Right Bank (ft)	Water Depth (ft)	Water Velocity (fps)	Sediment Depth (ft)	Sediment Penetrated (ft)	Sediment Recovered (ft)	Sediment Type	Interval (ft)	Description
20	2.6	0.00	1.50	1.50	0.80	COARSE	0-0.33	DARK GREY-BROWN SILT WITH GRAVEL AND WOOD PIECES
							0.00-0.80	DARK GREY-BROWN SILT, SOME ORGANICS/GREY-BROWN FINE SAND
48	4.9	0.00	0.20	0.20	0.00	COARSE	0-0.33	GREY-BROWN FINE TO COARSE SAND AND GRAVEL ON TOP OF LARGER GRAVEL AND ROCKS
74	4.8	0.00	3.40	2.00	1.50	COARSE	0-0.33	GREY-BROWN FINE TO COARSE SAND, SOME GRAVEL
							0.00-0.40	GREY-BROWN FINE TO COARSE SAND, SOME GRAVEL
							0.40-1.20	GREY-BROWN AND BROWN SILT AND FINE SAND WITH PEAT
							1.20-1.50	GREY FINE TO MEDIUM SAND
101	4.7	0.00	5.30	2.30	1.60	COARSE	0-0.33	GREY-BROWN MEDIUM TO COARSE SAND AND GRAVEL
							0.00-0.40	GREY-BROWN MEDIUM TO COARSE SAND AND GRAVEL
							0.40-1.40	GREY FINE TO COARSE SAND
							1.40-1.60	GREY COARSE SAND AND GRAVEL
129	4.8	0.00	0.40	0.40	0.00	COARSE	0-0.33	GREY-BROWN MEDIUM TO COARSE SAND AND GRAVEL ON TOP OF LARGER GRAVEL & ROCKS
156	4.4	0.00	0.80	0.80	0.00	COARSE	0-0.33	GREY FINE TO COARSE SAND AND GRAVEL
183	2.6	0.00	3.00	3.20	1.80	COARSE	0-0.33	DARK GREY-BROWN FINE TO COARSE SAND, SOME GRAVEL
							0.00-0.80	DARK GREY-BROWN FINE TO COARSE SAND
							0.80-1.60	GREY COARSE SAND AND GRAVEL
							1.60-1.80	GREY VERY HARD CRUMBLY MATERIAL

ALLIED PAPER, INC./PORTAGE CREEK/KALAMAZOO RIVER SUPERFUND SITE
TECHNICAL MEMORANDUM 10
SUMMARY OF SEDIMENT CHARACTERISATION FIELD OBSERVATIONS

TRANSECT: KPT30		Date Collected: 08/25/93		River Width (ft): 114.0		Distance to Right Edge of Water (ft): 0		
Distance From Right Bank (ft)	Water Depth (ft)	Water Velocity (fps)	Sediment Depth (ft)	Sediment Penetrated (ft)	Sediment Recovered (ft)	Sediment Type	Interval (ft)	Description
14	1.2	0.00	3.00	3.00	2.20	FINE	0-0.33	DARK GREY-BROWN SILT WITH FINE SAND AND ORGANIC MATTER
							0.00-0.90	DARK GREY-BROWN SILT WITH FINE SAND AND ORGANIC MATTER
							0.90-2.00	GREY FINE TO MEDIUM SAND
							2.00-2.20	GREY COARSE SAND AND GRAVEL
61	2.3	0.00	3.70	1.80	1.20	COARSE	0-0.33	DARK GREY-BROWN FINE TO COARSE SAND, SOME GRAVEL
							0.00-0.80	DARK GREY-BROWN FINE TO COARSE SAND, SOME GRAVEL
							0.80-1.10	GREY FINE SAND
							1.10-1.20	GREY VERY HARD CRUMBLY MATERIAL
108	1.4	0.00	1.80	1.60	0.90	COARSE	0-0.33	DARK GREY-BROWN FINE TO COARSE SAND, SOME GRAVEL
							0.00-0.90	DARK GREY-BROWN FINE TO COARSE SAND, SOME GRAVEL
289	1.9	0.00	2.50	1.90	1.30	COARSE	0-0.33	DARK GREY-BROWN FINE TO MEDIUM SAND, SOME ORGANIC MATTER AND GRAVEL
							0.00-0.40	GREY-BROWN FINE-MEDIUM SAND, SOME ORGANIC MATTER & GRAVEL
							0.40-1.30	GREY FINE SAND, SOME WOOD, SILT, AND PEAT MATERIAL
323	3.5	0.00	3.00	2.00	1.20	COARSE	0-0.33	GREY-BROWN MEDIUM TO COARSE SAND AND GRAVEL, SOME FINE SAND
							0.00-1.20	GREY-BROWN MEDIUM TO COARSE SAND & GRAVEL, SOME FINE SAND
355	3.5	0.00	1.40	1.10	0.70	COARSE	0-0.33	GREY-BROWN FINE TO COARSE SAND AND GRAVEL WITH WHITE HARD CRUMBLY MATERIAL
							0.00-0.70	GREY-BROWN FINE-COARSE SAND/GRAVEL, WHITE HARD MATERIAL
386	2.9	0.00	2.10	1.50	1.00	COARSE	0-0.33	GREY-BROWN FINE TO COARSE SAND AND GRAVEL, SOME WHITE HARD CRUMBLY MATERIAL
							0.00-0.60	GREY-BROWN FINE-COARSE SAND/GRAVEL, WHITE HARD MATERIAL
							0.60-1.00	WHITE AND GREY VERY HARD CRUMBLY MATERIAL

ALLIED PAPER, INC./PORTAGE CREEK/KALAMAZOO RIVER SUPERFUND SITE
 TECHNICAL MEMORANDUM 10
 SUMMARY OF SEDIMENT CHARACTERIZATION FIELD OBSERVATIONS

TRANSECT: KPT30		Date Collected: 08/25/93		River Width (ft): 152.0		Distance to Right Edge of Water (ft): 0		
Distance From Right Bank (ft)	Water Depth (ft)	Water Velocity (fps)	Sediment Depth (ft)	Sediment Penetrated (ft)	Sediment Recovered (ft)	Sediment Type	Interval (ft)	Description
420	1.9	0.00	1.50	1.30	1.00	COARSE	0-0.33	DARK GREY-BROWN FINE TO MEDIUM SAND WITH SILT, SOME GRAVEL
							0.00-0.70	DARK GREY-BROWN FINE TO MEDIUM SAND WITH SILT
							0.70-1.00	GREY FINE TO COARSE SAND

ALLIED PAPER, INC./PORTAGE CREEK/KALAMAZOO RIVER SUPERFUND SITE
TECHNICAL MEMORANDUM 10
SUMMARY OF SEDIMENT CHARACTERIZATION FIELD OBSERVATIONS

TRANSECT: KPT31		Date Collected: 08/25/93		River Width (ft): 151.0		Distance to Right Edge of Water (ft): 10		
Distance From Right Bank (ft)	Water Depth (ft)	Water Velocity (fps)	Sediment Depth (ft)	Sediment Penetrated (ft)	Sediment Recovered (ft)	Sediment Type	Interval (ft)	Description
19	2.8	0.50	2.00	1.40	0.90	FINE	0-0.33	GREY-BROWN FINE TO MEDIUM SAND, SOME SILT AND ORGANIC MATTER
							0.00-0.50	GREY-BROWN FINE TO MEDIUM SAND, SOME SILT/ORGANIC MATTER
							0.50-0.90	GREY FINE TO MEDIUM SAND
43	3.7	1.35	2.30	1.70	1.30	COARSE	0-0.33	GREY-BROWN FINE TO MEDIUM SAND, A LOT OF WHITE HARD CRUMBLY MATERIAL
							0.00-0.30	GREY-BROWN FINE-MEDIUM SAND, WHITE HARD CRUMBLY MATERIAL
							0.30-1.30	GREY FINE TO COARSE SAND, SOME GRAVEL
64	5.0	1.50	3.30	3.20	3.00	COARSE	0-0.33	GREY-BROWN FINE TO COARSE SAND, SOME GRAVEL
							0.00-3.00	GREY-BROWN FINE TO COARSE SAND, SOME GRAVEL
86	5.3	2.00	3.20	3.20	2.90	COARSE	0-0.33	GREY-BROWN FINE TO COARSE SAND, SOME GRAVEL
							0.00-2.90	GREY-BROWN FINE TO COARSE SAND, SOME GRAVEL
108	4.7	2.20	3.40	3.40	2.50	COARSE	0-0.33	GREY-BROWN FINE TO COARSE SAND, SOME GRAVEL
							0.00-2.50	GREY-BROWN MEDIUM TO COARSE SAND, SOME FINE SAND & GRAVEL
133	4.7	1.50	3.40	3.40	2.50	COARSE	0-0.33	GREY-BROWN MEDIUM TO COARSE SAND AND GRAVEL, SOME FINE SAND
							0.00-2.50	GREY-BROWN MEDIUM TO COARSE SAND, SOME FINE SAND & GRAVEL
153	3.3	0.60	2.40	2.40	2.40	COARSE	0-0.33	GREY-BROWN FINE TO COARSE SAND AND GRAVEL
							0.00-2.40	GREY-BROWN FINE TO COARSE SAND AND GRAVEL

ALLIED PAPER, INC./PORTAGE CREEK/KALAMAZOO RIVER SUPERFUND SITE
TECHNICAL MEMORANDUM 10
SUMMARY OF SEDIMENT CHARACTERIZATION FIELD OBSERVATIONS

TRANSECT: KPT32		Date Collected: 08/25/93		River Width (ft): 168.0		Distance to Right Edge of Water (ft): 0		
Distance From Right Bank (ft)	Water Depth (ft)	Water Velocity (fps)	Sediment Depth (ft)	Sediment Penetrated (ft)	Sediment Recovered (ft)	Sediment Type	Interval (ft)	Description
14	1.8	0.00	1.20	0.90	0.60	COARSE	0-0.33	GREY-BROWN FINE TO COARSE SAND AND GRAVEL
							0.00-0.40	GREY-BROWN FINE TO COARSE SAND AND GRAVEL
							0.40-0.60	GREY-BROWN GRAVEL
41	2.9	0.00	1.40	0.80	0.50	COARSE	0-0.33	GREY-BROWN FINE TO COARSE SAND WITH SOME WHITE HARD CRUMBLY MATERIAL
							0.00-0.50	GREY-BROWN FINE-COARSE SAND, WHITE HARD CRUMBLY MATERIAL
94	3.5	0.00	1.30	1.20	0.90	COARSE	0-0.33	GREY-BROWN FINE TO COARSE SAND AND GRAVEL
							0.00-0.50	GREY-BROWN FINE TO COARSE SAND AND GRAVEL
							0.50-0.90	GREY-BROWN FINE-COARSE SAND & GRAVEL, WHITE HARD MATERIAL
157	1.5	0.00	3.50	3.20	3.00	FINE	0-0.33	DARK GREY FINE SAND WITH ORGANIC MATTER
							0.00-0.60	DARK GREY FINE SAND WITH ORGANIC MATTER
							0.60-1.10	DARK GREY FINE TO COARSE SAND
							1.10-3.00	GREY-BROWN FINE TO COARSE SAND
238	2.0	0.00	1.80	1.80	1.70	COARSE	0-0.33	GREY-BROWN FINE TO MEDIUM SAND, SOME GRAVEL AND WHITE HARD CRUMBLY MATERIAL
							0.00-1.00	GREY-BROWN FINE/MEDIUM SAND, GRAVEL, WHITE HARD MATERIAL
							1.00-1.70	GREY AND WHITE MEDIUM TO COARSE HARD CRUMBLY MATERIAL
269	1.8	0.00	3.20	2.30	1.90	COARSE	0-0.33	DARK GREY FINE TO COARSE SAND WITH WHITE HARD CRUMBLY MATERIAL
							0.00-1.00	DARK GREY FINE-COARSE SAND, WHITE HARD CRUMBLY MATERIAL
							1.00-1.90	GREY AND WHITE MEDIUM TO COARSE HARD CRUMBLY MATERIAL
391	1.2	0.00	1.50	1.50	0.90	FINE	0-0.33	DARK GREY FINE SAND, SOME ORGANIC MATTER
							0.00-0.90	DARK GREY FINE SAND, SOME ORGANIC MATTER

ALLIED PAPER, INC./PORTAGE CREEK/KALAMAZOO RIVER SUPERFUND SITE
 TECHNICAL MEMORANDUM 10
 SUMMARY OF SEDIMENT CHARACTERIZATION FIELD OBSERVATIONS

TRANSECT: KPT32		Date Collected: 08/25/93		River Width (ft): 50.0		Distance to Right Edge of Water (ft): 0		
Distance From Right Bank (ft)	Water Depth (ft)	Water Velocity (fps)	Sediment Depth (ft)	Sediment Penetrated (ft)	Sediment Recovered (ft)	Sediment Type	Interval (ft)	Description
411	1.3	0.00	1.70	1.20	0.70	FINE	0-0.33	DARK GREY FINE SAND, SILT, AND ORGANIC MATTER
							0.00-0.70	DARK GREY FINE SAND, SILT, AND ORGANIC MATTER

ALLIED PAPER, INC./PORTAGE CREEK/KALAMASOO RIVER SUPERFUND SITE
TECHNICAL MEMORANDUM 10
SUMMARY OF SEDIMENT CHARACTERIZATION FIELD OBSERVATIONS

TRANSECT: KPT33		Date Collected: 08/26/93		River Width (ft): 205.0		Distance to Right Edge of Water (ft): 11		
Distance From Right Bank (ft)	Water Depth (ft)	Water Velocity (fps)	Sediment Depth (ft)	Sediment Penetrated (ft)	Sediment Recovered (ft)	Sediment Type	Interval (ft)	Description
21	2.7	0.00	3.20	3.20	2.10	FINE	0-0.33	GREY-BROWN SILT AND ORGANIC MATTER, SOME FINE SAND AND GRAVEL
							0.00-0.50	GREY-BROWN SILT AND ORGANIC MATTER, SOME FINE SAND
							0.50-2.10	GREY-BROWN FINE-COARSE SAND & GRAVEL, WHITE HARD MATERIAL
51	3.2	0.00	2.30	2.30	2.00	COARSE	0-0.33	GREY-BROWN FINE-COARSE SAND, FINE-MEDIUM WHITE HARD CRUMBLY MATERIAL, GRAVEL
							0.00-0.30	BROWN MEDIUM TO COARSE SAND, SOME GRAVEL
							0.30-1.40	GREY HARD CRUMBLY MATERIAL, SOME FINE TO COARSE SAND
							1.40-2.00	WHITE HARD CRUMBLY MATERIAL, SOME BROWN FINE-COARSE SAND
81	3.4	0.00	1.70	1.30	1.00	COARSE	0-0.33	GREY-BROWN FINE TO COARSE SAND AND GRAVEL
							0.00-0.30	BROWN MEDIUM TO COARSE SAND, SOME GRAVEL
							0.30-1.00	GREY-BROWN FINE-COARSE SAND & GRAVEL, WHITE HARD MATERIAL
110	3.6	0.00	1.80	1.20	0.90	COARSE	0-0.33	GREY-BROWN FINE-COARSE SAND/GRAVEL, SOME COARSE HARD WHITE CRUMBLY MATERIAL
							0.00-0.90	GREY-BROWN FINE-COARSE SAND & GRAVEL, WHITE HARD MATERIAL
141	3.4	0.00	2.60	1.90	1.40	COARSE	0-0.33	GREY-BROWN FINE TO COARSE SAND AND GRAVEL
							0.00-0.60	GREY-BROWN FINE TO COARSE SAND AND GRAVEL
							0.60-1.40	GREY-BROWN FINE-COARSE SAND & GRAVEL, WHITE HARD MATERIAL
172	3.4	0.00	4.30	4.10	1.50	COARSE	0-0.33	GREY-BROWN FINE-COARSE SAND & GRAVEL, SOME COARSE GREY HARD CRUMBLY MATERIAL
							0.00-0.70	GREY-BROWN FINE-COARSE SAND/GRAVEL, HARD CRUMBLY MATERIAL
							0.70-0.90	BROWN PIECE OF WOOD
							0.90-1.50	GREY MEDIUM TO FINE SAND

ALLIED PAPER, INC./PORTAGE CREEK/KALAMASOO RIVER SUPERFUND SITE
 TECHNICAL MEMORANDUM 10
 SUMMARY OF SEDIMENT CHARACTERIZATION FIELD OBSERVATIONS

TRANSECT: KPT33		Date Collected: 08/26/93		River Width (ft): 205.0		Distance to Right Edge of Water (ft): 11		
Distance From Right Bank (ft)	Water Depth (ft)	Water Velocity (fps)	Sediment Depth (ft)	Sediment Penetrated (ft)	Sediment Recovered (ft)	Sediment Type	Interval (ft)	Description
203	2.2	0.00	1.30	1.30	0.90	COARSE	0-0.33	GREY-BROWN FINE TO COARSE SAND AND GRAVEL
							0.00-0.50	GREY-BROWN FINE-COARSE SAND/GRAVEL, HARD CRUMBLY MATERIAL
							0.50-0.90	WHITE HARD CRUMBLY MATERIAL, GREY-BROWN FINE-COARSE SAND

ALLIED PAPER, INC./PORTAGE CREEK/KALAMASOO RIVER SUPERFUND SITE
TECHNICAL MEMORANDUM 10
SUMMARY OF SEDIMENT CHARACTERIZATION FIELD OBSERVATIONS

TRANSECT: KPT34		Date Collected: 08/26/93		River Width (ft): 294.0		Distance to Right Edge of Water (ft): 7		
Distance From Right Bank (ft)	Water Depth (ft)	Water Velocity (fps)	Sediment Depth (ft)	Sediment Penetrated (ft)	Sediment Recovered (ft)	Sediment Type	Interval (ft)	Description
18	2.1	0.00	2.10	2.10	2.00	COARSE	0-0.33	GREY-BROWN FINE-COARSE SAND/GRAVEL, SOME MEDIUM WHITE HARD CRUMBLY MATERIAL
							0.00-0.50	GREY-BROWN FINE-COARSE SAND/GRAVEL, WHITE HARD MATERIAL
							0.50-1.80	GREY/WHITE FINE-MEDIUM WHITE HARD CRUMBLY MATERIAL, SAND
							1.80-2.00	WHITE FINE TO MEDIUM HARD CRUMBLY MATERIAL
56	2.5	0.00	2.20	1.20	0.80	COARSE	0-0.33	GREY-BROWN FINE TO COARSE SAND, SOME COARSE GREY HARD CRUMBLY MATERIAL
							0.00-0.20	GREY-BROWN FINE TO COARSE SAND, SOME GREY HARD MATERIAL
							0.20-0.80	GREY-BROWN FINE TO COARSE SAND, GREY/WHITE HARD MATERIAL
97	4.0	0.00	0.80	0.60	0.50	COARSE	0-0.33	GREY-BROWN MEDIUM TO COARSE SAND AND GRAVEL
							0.00-0.50	GREY-BROWN MEDIUM TO COARSE SAND & GRAVEL ON TOP OF ROCK
135	3.1	0.00	0.70	0.70	0.60	COARSE	0-0.33	DARK GREY FINE TO COARSE SAND AND GRAVEL
							0.00-0.60	DARK GREY FINE-COARSE SAND/GRAVEL ATOP ROCK/HARD MATERIAL
174	2.8	0.00	1.20	0.80	0.60	FINE	0-0.33	DARK GREY FINE TO MEDIUM SAND WITH SOME SILT AND ORGANIC MATTER
							0.00-0.60	GREY FINE-COARSE SAND, SOME SILT, ORGANICS, ON TOP ROCK
211	2.9	0.00	0.60	0.60	0.00	FINE	0-0.33	DARK BROWN SILT AND ORGANIC MATTER, SOME FINE TO MEDIUM SAND
249	3.2	0.00	0.09	0.90	0.00	COARSE	0-0.33	GREY-BROWN MEDIUM TO COARSE SAND & GRAVEL ATOP ROCK OR HARD CRUMBLY MATERIAL
293	2.6	0.00	2.20	1.00	0.70	COARSE	0-0.33	GREY-BROWN FINE SAND AND SILT WITH A LOT OF GRAVEL
							0.00-0.70	GREY-BROWN FINE TO MEDIUM SAND, SOME SILT, MUCH GRAVEL

ALLIED PAPER, INC./PORTAGE CREEK/KALAMAZOO RIVER SUPERFUND SITE
TECHNICAL MEMORANDUM 10
SUMMARY OF SEDIMENT CHARACTERIZATION FIELD OBSERVATIONS

TRANSECT: KPT35		Date Collected: 08/26/93		River Width (ft): 354.0		Distance to Right Edge of Water (ft): 12		
Distance From Right Bank (ft)	Water Depth (ft)	Water Velocity (fps)	Sediment Depth (ft)	Sediment Penetrated (ft)	Sediment Recovered (ft)	Sediment Type	Interval (ft)	Description
21	1.6	1.00	0.90	0.90	0.60	COARSE	0-0.33	GREY-BROWN FINE TO COARSE SAND AND GRAVEL WITH WHITE HARD CRUMBLY MATERIAL
							0.00-0.60	GREY-BROWN FINE-COARSE SAND & GRAVEL, WHITE HARD MATERIAL
67	2.5	1.00	1.10	0.60	0.00	COARSE	0-0.33	DARK BROWN TO BLACK FINE TO COARSE SAND AND GRAVEL
116	2.2	1.25	0.30	0.30	0.00	COARSE	0-0.33	GREY-BROWN FINE-COARSE SAND & GRAVEL, WHITE HARD CRUMBLY MATERIAL ATOP ROCKS
164	2.4	2.25	2.30	2.30	2.30	COARSE	0-0.33	GREY-BROWN FINE TO COARSE SAND, FINE TO MEDIUM WHITE HARD CRUMBLY MATERIAL
							0.00-0.70	GREY-BROWN FINE-COARSE SAND, HARD WHITE CRUMBLY MATERIAL
							0.70-2.30	BROWN FINE-MEDIUM SAND, SOME WHITE HARD CRUMBLY MATERIAL
212	2.1	2.00	2.30	2.30	2.00	COARSE	0-0.33	DARK GREY-BROWN FINE-COARSE SAND, FINE-MEDIUM WHITE HARD CRUMBLY MATERIAL
							0.00-0.50	DARK GREY-BROWN FINE TO COARSE SAND, WHITE CRUMBLY MATTER
							0.50-1.40	BROWN FINE TO MEDIUM SAND, SOME WHITE HARD CRUMBLY MATTER
							1.40-1.70	WHITE HARD CRUMBLY MATERIAL
							1.70-2.00	GREY FINE TO MEDIUM SAND
260	2.2	1.00	1.60	1.50	0.90	COARSE	0-0.33	GREY-BROWN FINE TO COARSE SAND AND GRAVEL
							0.00-0.30	GREY-BROWN FINE TO COARSE SAND AND GRAVEL
							0.30-0.80	GREY-BROWN FINE-COARSE SAND & GRAVEL, GREY HARD MATERIAL
							0.80-0.90	BROWN PIECE OF WOOD
309	2.8	1.50	1.20	0.80	0.70	COARSE	0-0.33	GREY-BROWN FINE TO COARSE SAND AND GRAVEL, SOME GREY HARD CRUMBLY MATERIAL
							0.00-0.30	GREY-BROWN FINE-COARSE SAND & GRAVEL, GREY HARD MATERIAL
							0.30-0.70	GREY FINE-MEDIUM HARD CRUMBLY MATERIAL, SOME BROWN SAND

ALLIED PAPER, INC./PORTAGE CREEK/KALAMASOO RIVER SUPERFUND SITE
 TECHNICAL MEMORANDUM 10
 SUMMARY OF SEDIMENT CHARACTERISATION FIELD OBSERVATIONS

TRANSECT: KPT35		Date Collected: 08/26/93		River Width (ft): 354.0		Distance to Right Edge of Water (ft): 12		
Distance From Right Bank (ft)	Water Depth (ft)	Water Velocity (fps)	Sediment Depth (ft)	Sediment Penetrated (ft)	Sediment Recovered (ft)	Sediment Type	Interval (ft)	Description
348	2.2	2.50	1.20	1.00	0.70	COARSE	0-0.33	GREY-BROWN FINE TO COARSE SAND AND GRAVEL
							0.00-0.30	GREY-BROWN FINE TO COARSE SAND AND GRAVEL
							0.30-0.70	GREY FINE-MEDIUM HARD CRUMBLY MATERIAL, SOME SAND/GRAVEL

ALLIED PAPER, INC./PORTAGE CREEK/KALAMAZOO RIVER SUPERFUND SITE
TECHNICAL MEMORANDUM 10
SUMMARY OF SEDIMENT CHARACTERIZATION FIELD OBSERVATIONS

TRANSECT: KPT36		Date Collected: 08/30/93		River Width (ft): 104.0		Distance to Right Edge of Water (ft): 5		
Distance From Right Bank (ft)	Water Depth (ft)	Water Velocity (fps)	Sediment Depth (ft)	Sediment Penetrated (ft)	Sediment Recovered (ft)	Sediment Type	Interval (ft)	Description
17	0.6	0.00	1.50	1.50	1.10	FINE	0-0.33	GREY-BROWN FINE SAND WITH ORGANIC MATTER, SOME SILT
							0.00-1.10	GREY-BROWN AND DARK GREY FINE SAND, SOME SILT & ORGANICS
34	2.5	0.00	0.30	0.30	0.00	COARSE	0-0.33	GREY-BROWN FINE TO COARSE SAND AND GRAVEL ON TOP OF ROCKS
50	3.5	0.00	0.30	0.30	0.00	COARSE	0-0.33	GREY-BROWN FINE TO COARSE SAND AND GRAVEL ON TOP OF ROCK
65	5.0	0.00	0.70	0.70	0.00	COARSE	0-0.33	GREY-BROWN MEDIUM TO COARSE SAND AND GRAVEL ON TOP OF BROWN NATIVE TILL CLAY
82	5.5	0.00	0.10	0.10	0.00	COARSE	0-0.33	TOP 2"- BROWN COARSE SAND AND GRAVEL ON TOP OF ROCKS
99	3.5	0.00	0.70	0.70	0.60	COARSE	0-0.33	BROWN COARSE SAND AND GRAVEL ON TOP OF GREY CLAY
							0.00-0.10	BROWN FINE TO COARSE SAND AND GRAVEL
							0.10-0.60	GREY-BROWN NATIVE TILL CLAY

ALLIED PAPER, INC./PORTAGE CREEK/KALAMAZOO RIVER SUPERFUND SITE
 TECHNICAL MEMORANDUM 10
 SUMMARY OF SEDIMENT CHARACTERISATION FIELD OBSERVATIONS

TRANSECT: KPT37		Date Collected: 08/30/93		River Width (ft): 140.0		Distance to Right Edge of Water (ft): 8		
Distance From Right Bank (ft)	Water Depth (ft)	Water Velocity (fps)	Sediment Depth (ft)	Sediment Penetrated (ft)	Sediment Recovered (ft)	Sediment Type	Interval (ft)	Description
17	1.7	0.00	0.40	0.40	0.00	COARSE	0-0.33	GREY-BROWN FINE TO COARSE SAND AND GRAVEL ON TOP ROCKS
40	2.7	0.00	0.70	0.70	0.50	COARSE	0-0.33	GREY-BROWN FINE TO COARSE SAND AND GRAVEL
							0.00-0.50	GREY-BROWN FINE-COARSE SAND & GRAVEL, WHITE HARD MATERIAL
61	3.6	0.00	0.80	0.80	0.80	COARSE	0-0.33	GREY-BROWN MEDIUM TO COARSE SAND AND GRAVEL
							0.00-0.80	GREY-BROWN MEDIUM TO COARSE SAND AND GRAVEL
84	4.0	0.00	1.80	1.80	1.20	COARSE	0-0.33	GREY-BROWN FINE TO COARSE SAND AND GRAVEL, SOME WHITE HARD CRUMBLY MATERIAL
							0.00-1.20	GREY-BROWN FINE-COARSE SAND & GRAVEL, WHITE HARD MATERIAL
108	3.4	0.00	0.30	0.30	0.00	COARSE	0-0.33	GREY-BROWN FINE TO COARSE SAND AND GRAVEL, SOME WHITE HARD CRUMBLY MATERIAL
139	1.9	0.00	1.00	1.00	0.70	COARSE	0-0.33	BROWN FINE-MEDIUM SAND/GRAVEL, SOME COARSE SAND/WHITE HARD CRUMBLY MATERIAL
							0.00-0.70	BROWN FINE-MEDIUM SAND & GRAVEL, SOME WHITE HARD MATERIAL

ALLIED PAPER, INC./PORTAGE CREEK/KALAMASOO RIVER SUPERFUND SITE
TECHNICAL MEMORANDUM 10
SUMMARY OF SEDIMENT CHARACTERISATION FIELD OBSERVATIONS

TRANSECT: KPT38		Date Collected: 08/30/93		River Width (ft): 175.0		Distance to Right Edge of Water (ft): 10		
Distance From Right Bank (ft)	Water Depth (ft)	Water Velocity (fps)	Sediment Depth (ft)	Sediment Penetrated (ft)	Sediment Recovered (ft)	Sediment Type	Interval (ft)	Description
20	1.5	0.26	1.90	1.50	1.10	FINE	0-0.33	DARK GREY FINE SAND, SOME SILT AND ORGANIC MATTER
							0.00-0.50	DARK GREY FINE SAND, SOME SILT AND ORGANIC MATTER
							0.50-1.10	GREY FINE TO COARSE SAND AND GRAVEL
48	3.3	1.40	0.40	0.40	0.00	COARSE	0-0.33	GREY-BROWN FINE TO COARSE SAND AND GRAVEL ON TOP OF ROCKS
74	4.5	2.90	1.50	1.50	0.80	COARSE	0-0.33	GREY-BROWN FINE TO COARSE SAND AND GRAVEL
							0.00-0.40	GREY-BROWN FINE TO COARSE SAND AND GRAVEL
							0.40-0.80	GREY-BROWN FINE TO COARSE SAND, MUCH WHITE HARD MATERIAL
101	4.4	2.20	0.50	0.50	0.00	COARSE	0-0.33	GREY-BROWN FINE TO COARSE SAND AND GRAVEL, SOME WHITE HARD CRUMBLY MATERIAL
128	3.4	1.75	0.90	0.80	0.60	COARSE	0-0.33	GREY-BROWN FINE TO COARSE SAND AND GRAVEL, SOME WHITE HARD CRUMBLY MATERIAL
							0.00-0.30	GREY-BROWN COARSE SAND AND GRAVEL
							0.30-0.60	GREY-BROWN FINE-MEDIUM SAND, HARD WHITE CRUMBLY MATERIAL
154	2.6	0.95	3.20	1.30	1.00	COARSE	0-0.33	GREY-BROWN FINE TO MEDIUM SAND, SOME COARSE SAND AND GRAVEL
							0.00-0.50	GREY-BROWN FINE TO MEDIUM SAND, SOME COARSE SAND & GRAVEL
							0.50-1.00	GREY-BROWN FINE-VERY FINE SAND, SOME MEDIUM SAND ON ROCKS
175	2.0	0.55	1.80	1.80	1.60	FINE	0-0.33	DARK GREY SILT AND FINE SAND WITH SOME ORGANIC MATTER
							0.00-0.70	DARK GREY SILT AND FINE SAND WITH SOME ORGANIC MATTER
							0.70-1.60	GREY-BROWN FINE TO COARSE SAND AND GRAVEL

ALLIED PAPER, INC./PORTAGE CREEK/KALAMAZOO RIVER SUPERFUND SITE
TECHNICAL MEMORANDUM 10
SUMMARY OF SEDIMENT CHARACTERIZATION FIELD OBSERVATIONS

TRANSECT: KPT39		Date Collected: 08/31/93		River Width (ft): 171.0		Distance to Right Edge of Water (ft): 8		
Distance From Right Bank (ft)	Water Depth (ft)	Water Velocity (fps)	Sediment Depth (ft)	Sediment Penetrated (ft)	Sediment Recovered (ft)	Sediment Type	Interval (ft)	Description
17	2.1	0.00	2.00	2.00	1.10	FINE	0-0.33	DARK GREY FINE SAND AND SILT WITH ORGANIC MATTER
							0.00-0.50	DARK GREY FINE SAND AND SILT WITH ORGANIC MATTER
							0.50-1.10	DARK GREY FINE SAND, SOME SILT
40	3.7	0.00	1.00	1.00	0.60	COARSE	0-0.33	GREY-BROWN FINE-MEDIUM SAND & GRAVEL, SOME COARSE SAND & WHITE HARD MATERIAL
							0.00-0.60	GREY-BROWN FINE-COARSE SAND/GRAVEL, WHITE HARD MATERIAL
64	3.6	0.00	0.50	0.50	0.00	COARSE	0-0.33	GREY-BROWN FINE TO COARSE SAND AND GRAVEL ON TOP OF ROCKS AND LARGER GRAVEL
90	3.9	0.00	0.60	0.60	0.00	COARSE	0-0.33	GREY-BROWN MEDIUM TO COARSE SAND AND GRAVEL ON TOP OF ROCKS
113	4.3	0.00	0.60	0.60	0.00	COARSE	0-0.33	GREY-BROWN FINE-COARSE SAND & GRAVEL, SOME MEDIUM GREY HARD CRUMBLY MATERIAL
136	4.4	0.00	1.40	1.30	1.10	COARSE	0-0.33	GREY-BROWN FINE TO COARSE SAND AND GRAVEL
							0.00-1.10	GREY-BROWN FINE TO COARSE SAND AND GRAVEL
168	2.7	0.00	0.60	0.60	0.50	COARSE	0-0.33	GREY-BROWN FINE SAND, SOME GRAVEL ON TOP OF ROCKS
							0.00-0.50	GREY-BROWN FINE SAND WITH SOME GRAVEL

ALLIED PAPER, INC./PORTAGE CREEK/KALAMASOO RIVER SUPERFUND SITE
TECHNICAL MEMORANDUM 10
SUMMARY OF SEDIMENT CHARACTERISATION FIELD OBSERVATIONS

TRANSECT: KPT40		Date Collected: 08/31/93		River Width (ft): 260.0		Distance to Right Edge of Water (ft): 8		
Distance From Right Bank (ft)	Water Depth (ft)	Water Velocity (fps)	Sediment Depth (ft)	Sediment Penetrated (ft)	Sediment Recovered (ft)	Sediment Type	Interval (ft)	Description
18	1.6	0.00	2.00	1.90	1.30	FINE	0-0.33	DARK GREY SILT AND FINE SAND WITH A MODERATE ORGANIC ODOR
							0.00-0.70	DARK GREY SILT AND FINE SAND
							0.70-1.30	GREY FINE TO MEDIUM SAND, SOME COARSE SAND
53	2.0	0.00	1.20	1.00	0.90	COARSE	0-0.33	GREY-BROWN FINE TO COARSE SAND, SOME GRAVEL AND WHITE HARD CRUMBLY MATERIAL
							0.00-0.90	GREY-BROWN FINE-COARSE SAND, GRAVEL, WHITE HARD MATERIAL
91	2.0	0.00	2.70	1.50	1.00	COARSE	0-0.33	GREY-BROWN FINE TO COARSE SAND AND GRAVEL
							0.00-1.00	GREY-BROWN FINE TO COARSE SAND AND GRAVEL
125	3.4	0.00	2.10	2.10	1.20	COARSE	0-0.33	GREY-BROWN MEDIUM TO COARSE SAND AND GRAVEL
							0.00-0.50	GREY-BROWN MEDIUM TO COARSE SAND AND GRAVEL
							0.50-1.20	GREY-BROWN FINE-COARSE SAND/GRAVEL, WHITE HARD MATERIAL
160	2.9	0.00	1.60	1.50	1.10	COARSE	0-0.33	GREY-BROWN MEDIUM TO COARSE SAND AND GRAVEL
							0.00-0.40	GREY-BROWN MEDIUM TO COARSE SAND AND GRAVEL
							0.40-1.10	GREY-BROWN FINE TO MEDIUM SAND
195	2.5	0.00	1.90	0.90	0.70	COARSE	0-0.33	GREY-BROWN FINE TO COARSE SAND AND GRAVEL
							0.00-0.30	GREY-BROWN FINE TO COARSE SAND AND GRAVEL
							0.30-0.70	GREY-BROWN FINE TO MEDIUM SAND
227	1.6	0.00	3.40	3.10	2.40	FINE	0-0.33	DARK GREY FINE SAND WITH ORGANIC MATTER, SOME SILT AND GRAVEL
							0.00-1.10	DARK GREY FINE SAND & ORGANIC MATTER, SOME SILT & GRAVEL
							1.10-2.40	GREY-BROWN FINE TO MEDIUM SAND

ALLIED PAPER, INC./PORTAGE CREEK/KALAMAZOO RIVER SUPERFUND SITE
 TECHNICAL MEMORANDUM 10
 SUMMARY OF SEDIMENT CHARACTERISATION FIELD OBSERVATIONS

TRANSECT: KPT40		Date Collected: 08/31/93		River Width (ft): 260.0		Distance to Right Edge of Water (ft): 8		
Distance From Right Bank (ft)	Water Depth (ft)	Water Velocity (fps)	Sediment Depth (ft)	Sediment Penetrated (ft)	Sediment Recovered (ft)	Sediment Type	Interval (ft)	Description
253	1.0	0.00	2.20	1.60	1.10	FINE	0-0.33	GREY-BROWN SILT AND ORGANIC MATTER
							0.00-0.50	GREY-BROWN SILT AND ORGANIC MATTER
							0.50-1.10	DARK GREY SILT, GRAVEL BELOW

ALLIED PAPER, INC./PORTAGE CREEK/KALAMASOO RIVER SUPERFUND SITE
TECHNICAL MEMORANDUM 10
SUMMARY OF SEDIMENT CHARACTERIZATION FIELD OBSERVATIONS

TRANSECT: KPT41		Date Collected: 08/31/93		River Width (ft): 165.0		Distance to Right Edge of Water (ft): 5		
Distance From Right Bank (ft)	Water Depth (ft)	Water Velocity (fps)	Sediment Depth (ft)	Sediment Penetrated (ft)	Sediment Recovered (ft)	Sediment Type	Interval (ft)	Description
14	3.4	0.00	1.80	1.70	1.60	FINE	0-0.33	GREY-BROWN FINE SAND
							0.00-0.90	GREY-BROWN & DARK GREY FINE SAND, SOME ORGANIC MATTER
							0.90-1.20	LIGHT BROWN FINE SAND
							1.20-1.60	DARK BROWN PEAT WITH SOME LIGHT BROWN FINE SAND
39	4.5	0.00	2.50	1.00	0.60	FINE	0-0.33	BROWN FINE TO COARSE SAND WITH FINE WHITE HARD CRUMBLY MATERIAL
							0.00-0.30	BROWN FINE-COARSE SAND, FINE WHITE HARD CRUMBLY MATERIAL
							0.30-0.60	BROWN GRAVEL, SOME FINE-COARSE SAND/WHITE HARD MATERIAL
62	4.5	0.00	0.80	0.80	0.60	COARSE	0-0.33	GREY-BROWN FINE TO COARSE SAND, SOME GRAVEL
							0.00-0.60	GREY-BROWN FINE TO COARSE SAND AND GRAVEL
86	5.1	0.00	0.30	0.30	0.00	COARSE	0-0.33	GREY-BROWN FINE TO COARSE SAND AND GRAVEL ON TOP OF ROCKS
110	5.4	0.00	2.60	1.00	0.00	COARSE	0-0.33	GREY-BROWN FINE-COARSE SAND/GRAVEL, WHITE HARD CRUMBLY MATERIAL ATOP GRAVEL
134	4.8	0.00	3.40	2.20	1.30	COARSE	0-0.33	DARK GREY-BROWN FINE-COARSE SAND & GRAVEL WITH WHITE HARD CRUMBLY MATERIAL
							0.00-1.30	GREY FINE-COARSE SAND/GRAVEL, WHITE HARD CRUMBLY MATERIAL
162	1.7	0.00	1.60	1.20	1.00	FINE	0-0.33	DARK GREY SILT WITH FINE TO MEDIUM SAND, SOME GRAVEL
							0.00-0.40	DARK GREY SILT WITH FINE TO MEDIUM SAND
							0.40-1.00	GREY FINE TO COARSE SAND

ALLIED PAPER, INC./PORTAGE CREEK/KALAMAZOO RIVER SUPERFUND SITE
TECHNICAL MEMORANDUM 10
SUMMARY OF SEDIMENT CHARACTERIZATION FIELD OBSERVATIONS

TRANSECT: KPT42		Date Collected: 08/31/93		River Width (ft): 150.0		Distance to Right Edge of Water (ft): 9		
Distance From Right Bank (ft)	Water Depth (ft)	Water Velocity (fps)	Sediment Depth (ft)	Sediment Penetrated (ft)	Sediment Recovered (ft)	Sediment Type	Interval (ft)	Description
18	2.1	0.30	1.10	0.90	0.70	COARSE	0-0.33	GREY-BROWN FINE SAND WITH GRAVEL, SOME SILT AND ORGANIC MATTER
							0.00-0.70	GREY-BROWN FINE TO COARSE SAND AND GRAVEL
39	3.3	2.15	2.80	2.80	2.50	COARSE	0-0.33	GREY-BROWN FINE TO COARSE SAND AND GRAVEL
							0.00-0.70	GREY-BROWN FINE TO COARSE SAND AND GRAVEL
							0.70-2.50	GREY-BROWN FINE AND VERY FINE SAND
63	3.9	2.50	1.30	1.20	0.80	COARSE	0-0.33	BROWN FINE TO COARSE SAND AND GRAVEL
							0.00-0.40	BROWN FINE TO COARSE SAND AND GRAVEL
							0.40-0.80	GREY FINE TO MEDIUM SAND
86	3.9	2.60	0.90	0.90	0.50	COARSE	0-0.33	GREY-BROWN FINE TO COARSE SAND & GRAVEL ON TOP WHITE HARD CRUMBLY MATERIAL
							0.00-0.50	GREY-BROWN FINE-COARSE SAND/GRAVEL ATOP WHITE HARD MATTER
109	3.3	2.70	0.50	0.50	0.00	COARSE	0-0.33	GREY-BROWN FINE TO COARSE SAND AND GRAVEL ATOP WHITE HARD CRUMBLY MATERIAL
133	2.4	1.75	0.80	0.80	0.70	COARSE	0-0.33	GREY-BROWN FINE TO COARSE SAND AND GRAVEL
							0.00-0.70	GREY-BROWN FINE-COARSE SAND/GRAVEL ATOP WHITE HARD MATTER
154	1.1	1.35	1.50	1.50	1.20	COARSE	0-0.33	GREY-BROWN FINE TO COARSE SAND AND GRAVEL
							0.00-1.20	GREY-BROWN FINE TO COARSE SAND AND GRAVEL

ALLIED PAPER, INC./PORTAGE CREEK/KALAMAZOO RIVER SUPERFUND SITE
 TECHNICAL MEMORANDUM 10
 SUMMARY OF SEDIMENT CHARACTERISATION FIELD OBSERVATIONS

TRANSECT: KPT43		Date Collected: 09/02/93		River Width (ft): 137.0		Distance to Right Edge of Water (ft): 5		
Distance From Right Bank (ft)	Water Depth (ft)	Water Velocity (fps)	Sediment Depth (ft)	Sediment Penetrated (ft)	Sediment Recovered (ft)	Sediment Type	Interval (ft)	Description
13	4.1	0.00	2.90	1.70	0.80	COARSE	0-0.33	GREY-BROWN FINE TO COARSE SAND WITH WHITE HARD CRUMBLY MATERIAL
							0.00-0.60	GREY-BROWN FINE-COARSE SAND, WHITE HARD CRUMBLY MATERIAL
							0.60-0.80	GREY FINE-COARSE SAND & GRAVEL, GREY-WHITE HARD MATERIAL
32	4.7	0.00	2.60	1.20	1.10	COARSE	0-0.33	GREY-BROWN FINE TO COARSE SAND AND GRAVEL WITH WHITE HARD CRUMBLY MATERIAL
							0.00-0.60	GREY-BROWN FINE-COARSE SAND/GRAVEL, WHITE HARD MATERIAL
							0.60-0.80	DARK GREY FINE TO MEDIUM SAND
							0.80-1.10	GREY-BROWN FINE-COARSE SAND/GRAVEL, WHITE HARD MATERIAL
52	5.6	0.00	2.00	1.40	1.00	COARSE	0-0.33	GREY-BROWN FINE TO COARSE SAND, SOME GRAVEL
							0.00-1.00	GREY-BROWN FINE TO COARSE SAND AND GRAVEL
72	4.6	0.00	2.70	2.70	2.70	COARSE	0-0.33	GREY-BROWN FINE-MEDIUM SAND/GRAVEL, FINE-MEDIUM WHITE HARD CRUMBLY MATERIAL
							0.00-0.80	GREY-BROWN FINE-MEDIUM SAND, GRAVEL, HARD WHITE MATERIAL
							0.80-2.00	GREY-BROWN FINE TO COARSE SAND, SOME GRAVEL
							2.00-2.70	GREY FINE TO MEDIUM SAND, SOME COARSE SAND
92	3.4	0.00	4.20	4.20	2.40	COARSE	0-0.33	GREY-BROWN FINE TO COARSE SAND AND GRAVEL, SOME WHITE HARD CRUMBLY MATERIAL
							0.00-0.90	GREY-BROWN FINE-COARSE SAND/GRAVEL, SOME HARD MATERIAL
							0.90-2.10	GREY-BROWN FINE-COARSE SAND/GRAVEL, WHITE HARD MATERIAL
							2.10-2.40	GREY FINE TO MEDIUM SAND, SOME COARSE SAND
112	3.8	0.00	1.00	1.00	1.00	COARSE	0-0.33	GREY-BROWN FINE TO COARSE SAND/GRAVEL, SOME FINE WHITE HARD CRUMBLY MATERIAL
							0.00-0.60	GREY-BROWN FINE-COARSE SAND/GRAVEL, SOME HARD MATERIAL
							0.60-1.00	GREY-BROWN FINE-MEDIUM SAND, COARSE WHITE HARD MATERIAL

ALLIED PAPER, INC./PORTAGE CREEK/KALAMAZOO RIVER SUPERFUND SITE
 TECHNICAL MEMORANDUM 10
 SUMMARY OF SEDIMENT CHARACTERISATION FIELD OBSERVATIONS

TRANSECT: KPT43		Date Collected: 09/02/93		River Width (ft): 137.0		Distance to Right Edge of Water (ft): 5		
Distance From Right Bank (ft)	Water Depth (ft)	Water Velocity (fps)	Sediment Depth (ft)	Sediment Penetrated (ft)	Sediment Recovered (ft)	Sediment Type	Interval (ft)	Description
132	3.2	0.00	0.30	0.30	0.00	COARSE	0-0.33	GREY FINE-MEDIUM HARD CRUMBLY MATERIAL, SOME SAND/GRAVEL ATOP HARD MATERIAL

ALLIED PAPER, INC./PORTAGE CREEK/KALAMASOO RIVER SUPERFUND SITE
TECHNICAL MEMORANDUM 10
SUMMARY OF SEDIMENT CHARACTERISATION FIELD OBSERVATIONS

TRANSECT: KPT44		Date Collected: 09/03/93		River Width (ft): 150.0		Distance to Right Edge of Water (ft): 6		
Distance From Right Bank (ft)	Water Depth (ft)	Water Velocity (fps)	Sediment Depth (ft)	Sediment Penetrated (ft)	Sediment Recovered (ft)	Sediment Type	Interval (ft)	Description
15	3.4	0.00	2.60	2.60	1.50	COARSE	0-0.33	GREY-BROWN FINE TO COARSE SAND AND GRAVEL
							0.00-0.40	GREY-BROWN FINE TO COARSE SAND AND GRAVEL
							0.40-1.50	DARK GREY FINE TO MEDIUM SAND
35	5.1	0.00	0.40	0.40	0.00	COARSE	0-0.33	DARK GREY MEDIUM TO COARSE SAND AND GRAVEL ON TOP OF ROCKS
56	6.7	0.00	2.00	1.80	1.40	COARSE	0-0.33	GREY-BROWN FINE TO COARSE SAND AND GRAVEL
							0.00-0.60	GREY-BROWN FINE TO COARSE SAND AND GRAVEL
							0.60-1.00	LIGHT GREY-BROWN CLAY
							1.00-1.40	DARK GREY-BROWN CLAY
76	6.9	0.00	2.10	1.30	1.10	COARSE	0-0.33	LIGHT GREY-BROWN CLAY WITH SOME MEDIUM TO COARSE GREY-BROWN SAND AND GRAVEL
							0.00-0.20	GREY-BROWN FINE TO COARSE SAND AND GRAVEL
							0.20-0.80	LIGHT GREY-BROWN CLAY
							0.80-1.10	DARK GREY-BROWN CLAY
97	5.6	0.00	1.60	1.40	1.30	COARSE	0-0.33	DARK GREY FINE TO COARSE SAND AND GRAVEL
							0.00-0.70	GREY-BROWN AND DARK GREY FINE TO COARSE SAND AND GRAVEL
							0.70-1.30	DARK GREY-BROWN CLAY
118	2.3	0.00	2.60	2.60	1.90	COARSE	0-0.33	GREY-BROWN FINE SAND WITH SILT AND BLACK MEDIUM TO COARSE SAND
							0.00-0.40	GREY-BROWN FINE SAND WITH SILT
							0.40-0.70	BLACK MEDIUM TO COARSE SAND
							0.70-1.00	BLACK FINE TO MEDIUM SAND
							1.00-1.90	GREY-BROWN FINE TO COARSE SAND AND GRAVEL

ALLIED PAPER, INC./PORTAGE CREEK/KALAMASOO RIVER SUPERFUND SITE
 TECHNICAL MEMORANDUM 10
 SUMMARY OF SEDIMENT CHARACTERIZATION FIELD OBSERVATIONS

TRANSECT: KPT44		Date Collected: 09/03/93		River Width (ft): 150.0		Distance to Right Edge of Water (ft): 6		
Distance From Right Bank (ft)	Water Depth (ft)	Water Velocity (fps)	Sediment Depth (ft)	Sediment Penetrated (ft)	Sediment Recovered (ft)	Sediment Type	Interval (ft)	Description
144	1.4	0.00	4.70	4.60	2.30	FINE	0-0.33	GREY-BROWN FINE SAND WITH SOME SILT
							0.00-0.60	GREY-BROWN FINE SAND WITH SILT
							0.60-2.30	DARK GREY-BROWN FINE TO COARSE SAND AND GRAVEL

ALLIED PAPER, INC./PORTAGE CREEK/KALAMAZOO RIVER SUPERFUND SITE
TECHNICAL MEMORANDUM 10
SUMMARY OF SEDIMENT CHARACTERIZATION FIELD OBSERVATIONS

TRANSECT: RPT45		Date Collected: 09/03/93		River Width (ft): 143.0		Distance to Right Edge of Water (ft): 7		
Distance From Right Bank (ft)	Water Depth (ft)	Water Velocity (fps)	Sediment Depth (ft)	Sediment Penetrated (ft)	Sediment Recovered (ft)	Sediment Type	Interval (ft)	Description
15	5.0	0.00	1.70	1.70	1.10	COARSE	0-0.33	BROWN FINE SAND AND SILT WITH GRAVEL
							0.00-0.60	BROWN FINE SAND AND SILT WITH SOME GRAVEL
							0.60-1.10	BROWN FINE-COARSE SAND, SOME WHITE HARD CRUMBLY MATERIAL
36	5.8	0.00	1.80	1.60	1.40	COARSE	0-0.33	GREY-BROWN FINE-COARSE SAND/GRAVEL, FINE-MEDIUM WHITE HARD CRUMBLY MATERIAL
							0.00-0.40	GREY-BROWN FINE-COARSE SAND/GRAVEL, WHITE HARD MATERIAL
							0.40-1.40	GREY-BROWN FINE-COARSE SAND/GRAVEL, SOME HARD MATERIAL
54	5.8	0.00	1.20	1.20	0.70	COARSE	0-0.33	GREY-BROWN FINE TO COARSE SAND AND GRAVEL
							0.00-0.40	GREY-BROWN FINE TO COARSE SAND AND GRAVEL
							0.40-0.70	GREY-BROWN FINE-COARSE SAND/GRAVEL, WHITE HARD MATERIAL
76	5.1	0.00	1.00	1.00	0.70	COARSE	0-0.33	GREY-BROWN FINE TO COARSE SAND AND GRAVEL
							0.00-0.70	GREY-BROWN FINE TO COARSE SAND AND GRAVEL
96	5.0	0.00	1.20	1.10	1.00	COARSE	0-0.33	GREY-BROWN FINE TO COARSE SAND AND GRAVEL
							0.00-1.00	GREY-BROWN FINE-COARSE SAND/GRAVEL, WHITE HARD MATERIAL
117	4.8	0.00	2.20	1.80	1.60	COARSE	0-0.33	GREY-BROWN FINE TO COARSE SAND AND GRAVEL
							0.00-1.30	GREY-BROWN FINE TO COARSE SAND AND GRAVEL
							1.30-1.60	DARK GREY FINE TO MEDIUM SAND
141	3.6	0.00	2.70	2.00	1.30	FINE	0-0.33	GREY-BROWN SILT WITH SOME FINE SAND AND ORGANIC MATTER
							0.00-1.30	GREY-BROWN SILT WITH SOME FINE SAND AND ORGANIC MATTER

ALLIED PAPER, INC./PORTAGE CREEK/KALAMAZOO RIVER SUPERFUND SITE
TECHNICAL MEMORANDUM 10
SUMMARY OF SEDIMENT CHARACTERIZATION FIELD OBSERVATIONS

TRANSECT: KPT46		Date Collected: 09/07/93		River Width (ft): 117.0		Distance to Right Edge of Water (ft): 7		
Distance From Right Bank (ft)	Water Depth (ft)	Water Velocity (fps)	Sediment Depth (ft)	Sediment Penetrated (ft)	Sediment Recovered (ft)	Sediment Type	Interval (ft)	Description
17	4.0	0.40	2.90	2.80	2.00	FINE	0-0.33	GREY-BROWN FINE SAND AND SILT WITH ORGANIC MATTER, SOME MEDIUM SAND
							0.00-0.40	GREY-BROWN FINE SAND & SILT, SOME ORGANICS & MEDIUM SAND
							0.40-2.00	BROWN FINE TO COARSE SAND
36	6.7	1.90	2.00	1.90	0.80	COARSE	0-0.33	GREY-BROWN FINE SAND, SOME COARSE SAND AND GRAVEL
							0.00-0.30	GREY-BROWN FINE SAND, SOME COARSE SAND AND GRAVEL
							0.30-0.80	BROWN FINE SAND
55	6.4	3.40	2.00	1.80	1.50	COARSE	0-0.33	BROWN FINE TO COARSE SAND AND GRAVEL
							0.00-1.50	BROWN AND GREY FINE TO COARSE SAND AND GRAVEL
72	6.5	3.25	1.90	1.50	0.90	COARSE	0-0.33	GREY-BROWN FINE TO COARSE SAND AND GRAVEL
							0.00-0.90	GREY-BROWN FINE TO COARSE SAND AND GRAVEL
88	4.1	3.00	1.50	1.50	1.00	COARSE	0-0.33	GREY-BROWN FINE TO COARSE SAND AND GRAVEL
							0.00-1.00	GREY-BROWN FINE TO COARSE SAND AND GRAVEL
105	2.3	2.10	1.80	1.70	1.20	COARSE	0-0.33	GREY-BROWN FINE TO COARSE SAND AND GRAVEL
							0.00-1.20	GREY-BROWN FINE TO COARSE SAND AND GRAVEL
121	1.0	0.95	2.40	2.10	1.80	FINE	0-0.33	GREY-BROWN FINE TO MEDIUM SAND WITH ORGANIC MATTER
							0.00-0.90	GREY-BROWN FINE TO MEDIUM SAND WITH ORGANIC MATTER
							0.90-1.40	DARK GREY FINE TO MEDIUM SAND WITH SILT
							1.40-1.80	GREY-BROWN FINE TO COARSE SAND

ALLIED PAPER, INC./PORTAGE CREEK/KALAMAZOO RIVER SUPERFUND SITE
TECHNICAL MEMORANDUM 10
SUMMARY OF SEDIMENT CHARACTERISATION FIELD OBSERVATIONS

TRANSECT: KPT47		Date Collected: 09/07/93		River Width (ft): 106.0		Distance to Right Edge of Water (ft): 0		
Distance From Right Bank (ft)	Water Depth (ft)	Water Velocity (fps)	Sediment Depth (ft)	Sediment Penetrated (ft)	Sediment Recovered (ft)	Sediment Type	Interval (ft)	Description
17	4.1	0.00	2.10	1.70	1.40	COARSE	0-0.33	GREY-BROWN FINE TO COARSE SAND AND GRAVEL WITH SILT
							0.00-0.80	GREY-BROWN FINE SAND AND SILT, SOME MEDIUM TO COARSE SAND
							0.80-1.40	GREY FINE SAND, SOME ORGANIC MATTER
45	6.3	0.00	0.70	0.50	0.00	COARSE	0-0.33	GREY-BROWN FINE-COARSE SAND/GRAVEL, WHITE HARD CRUMBLY MATERIAL ON TOP ROCKS
73	6.3	0.00	1.20	1.10	0.90	COARSE	0-0.33	GREY-BROWN FINE TO COARSE SAND AND GRAVEL
							0.00-0.90	GREY-BROWN FINE TO COARSE SAND AND GRAVEL
102	4.1	0.00	1.60	1.60	1.40	COARSE	0-0.33	GREY-BROWN FINE TO COARSE SAND, SOME SILT
							0.00-0.70	GREY-BROWN FINE TO COARSE SAND AND SILT
							0.70-1.40	GREY-BROWN MEDIUM TO COARSE SAND
164	0.8	0.00	2.90	2.90	2.40	COARSE	0-0.33	GREY-BROWN MEDIUM TO COARSE SAND, SOME FINE SAND AND SILT
							0.00-0.60	GREY-BROWN MEDIUM TO COARSE SAND, SOME FINE SAND AND SILT
							0.60-2.40	GREY FINE TO COARSE SAND
183	1.5	0.00	2.10	2.10	1.70	COARSE	0-0.33	GREY-BROWN MEDIUM TO COARSE SAND, SOME FINE SAND
							0.00-0.30	GREY-BROWN MEDIUM TO COARSE SAND, SOME FINE SAND
							0.30-1.30	GREY-BROWN MEDIUM TO COARSE SAND
							1.30-1.70	GREY-BROWN FINE SAND
200	1.2	0.00	1.80	1.60	1.10	FINE	0-0.33	GREY SILT AND VERY FINE SAND, MODERATE TO STRONG ORGANIC ODOR
							0.00-0.30	GREY SILT AND VERY FINE SAND
							0.30-1.10	GREY SILT

ALLIED PAPER, INC./PORTAGE CREEK/KALAMAZOO RIVER SUPERFUND SITE
TECHNICAL MEMORANDUM 10
SUMMARY OF SEDIMENT CHARACTERIZATION FIELD OBSERVATIONS

TRANSECT: KPT48		Date Collected: 09/08/93		River Width (ft): 216.0		Distance to Right Edge of Water (ft): 9		
Distance From Right Bank (ft)	Water Depth (ft)	Water Velocity (fps)	Sediment Depth (ft)	Sediment Penetrated (ft)	Sediment Recovered (ft)	Sediment Type	Interval (ft)	Description
17	4.6	0.00	2.90	2.40	1.60	FINE	0-0.33	GREY-BROWN FINE SAND, SOME MEDIUM TO COARSE SAND
							0.00-0.30	GREY-BROWN FINE SAND, SOME MEDIUM TO COARSE SAND
							0.30-1.10	DARK GREY FINE SAND AND SILT
							1.10-1.30	WHITE HARD CRUMBLY MATERIAL
							1.30-1.60	GREY FINE TO COARSE SAND AND GRAVEL
46	4.0	0.00	2.70	2.50	2.00	COARSE	0-0.33	GREY-BROWN FINE TO COARSE SAND AND GRAVEL
							0.00-0.40	GREY-BROWN FINE TO COARSE SAND AND GRAVEL
							0.40-0.70	DARK GREY FINE SAND AND SILT
							0.70-2.00	DARK GREY FINE TO MEDIUM SAND
75	3.3	0.00	3.90	3.80	3.00	COARSE	0-0.33	GREY-BROWN FINE TO COARSE SAND AND GRAVEL
							0.00-0.60	GREY-BROWN FINE TO COARSE SAND AND GRAVEL
							0.60-1.90	GREY FINE TO MEDIUM SAND
							1.90-2.10	WHITE HARD CRUMBLY MATERIAL
							2.10-3.00	GREY FINE TO COARSE SAND
105	3.7	0.00	3.90	3.90	2.50	COARSE	0-0.33	BROWN FINE TO COARSE SAND AND GRAVEL
							0.00-0.50	BROWN FINE TO COARSE SAND AND GRAVEL
							0.50-1.60	GREY FINE TO COARSE SAND
							1.60-2.50	GREY FINE TO COARSE SAND, SOME SILT

ALLIED PAPER, INC./PORTAGE CREEK/KALAMAZOO RIVER SUPERFUND SITE
 TECHNICAL MEMORANDUM 10
 SUMMARY OF SEDIMENT CHARACTERIZATION FIELD OBSERVATIONS

TRANSECT: KPT48		Date Collected: 09/08/93		River Width (ft): 216.0		Distance to Right Edge of Water (ft): 9		
Distance From Right Bank (ft)	Water Depth (ft)	Water Velocity (fps)	Sediment Depth (ft)	Sediment Penetrated (ft)	Sediment Recovered (ft)	Sediment Type	Interval (ft)	Description
134	3.3	0.00	0.90	0.90	0.80	COARSE	0-0.33	GREY-BROWN FINE TO COARSE SAND AND GRAVEL
							0.00-0.30	GREY-BROWN FINE TO COARSE SAND AND GRAVEL
							0.30-0.80	GREY FINE TO COARSE SAND WITH SILT
164	2.8	0.00	2.10	1.90	0.70	COARSE	0-0.33	GREY-BROWN FINE TO COARSE SAND AND GRAVEL WITH SOME SILT
							0.00-0.70	GREY-BROWN FINE-COARSE SAND/GRAVEL, SOME SILT, ON ROCKS
211	1.8	0.00	1.00	1.00	0.90	COARSE	0-0.33	GREY-BROWN MEDIUM TO COARSE SAND WITH SILT
							0.00-0.70	GREY-BROWN MEDIUM TO COARSE SAND WITH SILT
							0.70-0.90	WHITE HARD CRUMBLY MATERIAL

ALLIED PAPER, INC./PORTAGE CREEK/KALAMAZOO RIVER SUPERFUND SITE
TECHNICAL MEMORANDUM 10
SUMMARY OF SEDIMENT CHARACTERIZATION FIELD OBSERVATIONS

TRANSECT: KPT49		Date Collected: 09/08/93		River Width (ft): 130.0		Distance to Right Edge of Water (ft): 8		
Distance From Right Bank (ft)	Water Depth (ft)	Water Velocity (fps)	Sediment Depth (ft)	Sediment Penetrated (ft)	Sediment Recovered (ft)	Sediment Type	Interval (ft)	Description
17	1.5	0.00	3.40	3.00	2.00	FINE	0-0.33	DARK GREY SILT AND FINE SAND WITH SOME ORGANIC MATTER
							0.00-1.30	DARK GREY SILT AND FINE SAND WITH SOME ORGANIC MATTER
							1.30-2.00	GREY FINE SAND
39	5.6	0.00	0.90	0.90	0.80	FINE	0-0.33	BROWN VERY FINE SAND, SOME ORGANIC MATTER AND GRAVEL
							0.00-0.40	BROWN VERY FINE SAND, SOME ORGANIC MATTER
							0.40-0.80	GREY-BROWN FINE TO MEDIUM SAND
60	7.1	0.00	1.10	1.10	0.90	COARSE	0-0.33	BROWN FINE TO COARSE SAND AND GRAVEL
							0.00-0.50	BROWN FINE TO COARSE SAND AND GRAVEL
							0.50-0.90	BROWN FINE TO COARSE SAND AND GRAVEL WITH GREY-BROWN CLAY
82	6.9	0.00	1.30	1.30	1.30	COARSE	0-0.33	GREY-BROWN FINE TO COARSE SAND AND GRAVEL
							0.00-1.10	GREY-BROWN FINE TO COARSE SAND AND GRAVEL
							1.10-1.30	GREY-BROWN CLAY
103	4.6	0.00	1.40	1.30	1.00	COARSE	0-0.33	GREY-BROWN FINE TO COARSE SAND AND GRAVEL
							0.00-1.00	GREY-BROWN FINE TO COARSE SAND AND GRAVEL
129	2.5	0.00	1.00	0.80	0.00	COARSE	0-0.33	GREY-BROWN FINE TO COARSE SAND/GRAVEL, SOME CLAY ATOP ROCKS & LARGER GRAVEL

ALLIED PAPER, INC./PORTAGE CREEK/KALAMASOO RIVER SUPERFUND SITE
TECHNICAL MEMORANDUM 10
SUMMARY OF SEDIMENT CHARACTERISATION FIELD OBSERVATIONS

TRANSECT: KPT50		Date Collected: 09/08/93		River Width (ft): 125.0		Distance to Right Edge of Water (ft): 11		
Distance From Right Bank (ft)	Water Depth (ft)	Water Velocity (fps)	Sediment Depth (ft)	Sediment Penetrated (ft)	Sediment Recovered (ft)	Sediment Type	Interval (ft)	Description
20	3.1	0.85	5.90	5.20	3.50	FINE	0-0.33	DARK GREY SILT AND ORGANIC MATTER WITH SOME VERY FINE SAND
							0.00-1.40	DARK GREY SILT & ORGANIC MATTER WITH SOME VERY FINE SAND
							1.40-3.20	GREY FINE TO MEDIUM SAND
							3.20-3.50	GREY FINE TO COARSE SAND AND GRAVEL
41	3.6	2.15	6.00	4.90	3.00	FINE	0-0.33	DARK BROWN TO BLACK SILT WITH SOME VERY FINE SAND
							0.00-1.50	DARK BROWN TO BLACK SILT WITH SOME VERY FINE SAND
							1.50-3.00	GREY FINE TO MEDIUM SAND
63	2.2	1.73	6.50	6.50	5.00	COARSE	0-0.33	GREY-BROWN FINE TO COARSE SAND AND GRAVEL
							0.00-3.00	GREY-BROWN FINE TO COARSE SAND AND GRAVEL
							3.00-4.00	DARK GREY SILT AND FINE SAND
							4.00-5.00	GREY FINE TO COARSE SAND
84	2.5	1.25	6.70	6.70	4.80	COARSE	0-0.33	GREY-BROWN MEDIUM TO COARSE SAND AND GRAVEL
							0.00-1.10	GREY-BROWN MEDIUM TO COARSE SAND & GRAVEL, SOME FINE SAND
							1.10-3.30	GREY FINE TO MEDIUM SAND, SOME COARSE SAND
							3.30-4.00	DARK GREY FINE SAND AND SILT
							4.00-4.80	GREY FINE TO MEDIUM SAND
105	2.8	1.35	4.50	4.50	3.10	COARSE	0-0.33	BROWN MEDIUM TO COARSE SAND, SOME FINE SAND
							0.00-1.00	BROWN MEDIUM TO COARSE SAND, SOME FINE SAND
							1.00-3.10	GREY FINE TO COARSE SAND WITH SOME SILT

ALLIED PAPER, INC./PORTAGE CREEK/KALAMASOO RIVER SUPERFUND SITE
 TECHNICAL MEMORANDUM 10
 SUMMARY OF SEDIMENT CHARACTERIZATION FIELD OBSERVATIONS

TRANSECT: KPT50		Date Collected: 09/08/93		River Width (ft): 125.0		Distance to Right Edge of Water (ft): 11		
Distance From Right Bank (ft)	Water Depth (ft)	Water Velocity (fps)	Sediment Depth (ft)	Sediment Penetrated (ft)	Sediment Recovered (ft)	Sediment Type	Interval (ft)	Description
125	3.0	1.00	5.00	4.70	3.30	FINE	0-0.33	GREY-BROWN VERY FINE SAND & SILT, SOME ORGANICS & MEDIUM-COARSE SAND/GRAVEL
							0.00-1.00	GREY-BROWN VERY FINE SAND AND SILT, SOME ORGANIC MATTER
							1.00-2.40	GREY-BROWN FINE TO COARSE SAND
							2.40-2.90	DARK GREY FINE SAND AND SILT
							2.90-3.30	GREY FINE TO MEDIUM SAND

ALLIED PAPER, INC./PORTAGE CREEK/KALAMAZOO RIVER SUPERFUND SITE
TECHNICAL MEMORANDUM 10
SUMMARY OF SEDIMENT CHARACTERIZATION FIELD OBSERVATIONS

TRANSECT: KPT51		Date Collected: 09/08/93		River Width (ft): 56.0		Distance to Right Edge of Water (ft): 17		
Distance From Right Bank (ft)	Water Depth (ft)	Water Velocity (fps)	Sediment Depth (ft)	Sediment Penetrated (ft)	Sediment Recovered (ft)	Sediment Type	Interval (ft)	Description
22	2.4	0.00	3.40	2.60	1.70	FINE	0-0.33	GREY-BROWN FINE SAND WITH GRAVEL
							0.00-0.40	GREY-BROWN FINE SAND WITH GRAVEL
							0.40-1.20	GREY-BROWN FINE TO MEDIUM SAND WITH SOME DARK GREY SILT
							1.20-1.70	BROWN FINE TO MEDIUM SAND WITH SOME SILT
32	3.7	0.00	6.00	6.00	1.70	FINE	0-0.33	DARK GREY TO BLACK FINE SAND WITH GRAVEL
							0.00-0.90	DARK GREY FINE SAND WITH GRAVEL AND TRACE OF CLAY
							0.90-1.70	BROWN FINE SAND WITH SOME MEDIUM-COARSE SAND, TRACE CLAY
42	4.0	0.00	4.00	3.50	1.00	COARSE	0-0.33	GREY-BROWN FINE TO COARSE SAND AND GRAVEL
							0.00-0.40	GREY-BROWN FINE TO COARSE SAND AND GRAVEL
							0.40-0.70	DARK GREY FINE TO COARSE SAND
							0.70-0.90	BROWN FINE TO COARSE SAND AND GRAVEL MIXED WITH CLAY
52	4.4	0.00	3.00	3.00	1.10	COARSE	0-0.33	GREY-BROWN FINE TO COARSE SAND AND GRAVEL
							0.00-0.30	GREY-BROWN FINE TO COARSE SAND AND GRAVEL
							0.30-1.10	BROWN FINE TO COARSE SAND AND GRAVEL MIXED WITH CLAY
63	3.5	0.00	6.00	4.20	2.30	FINE	0-0.33	GREY-BROWN FINE SAND WITH SOME GRAVEL
							0.00-0.50	GREY-BROWN FINE SAND WITH SOME GRAVEL
							0.50-2.30	BROWN FINE TO COARSE SAND AND GRAVEL MIXED WITH CLAY
71	1.8	0.00	3.70	2.80	2.00	FINE	0-0.33	GREY-BROWN FINE SAND, SOME MEDIUM TO COARSE SAND
							0.00-2.00	GREY-BROWN FINE SAND WITH SOME MEDIUM TO COARSE SAND

ALLIED PAPER, INC./PORTAGE CREEK/KALAMASOO RIVER SUPERFUND SITE
TECHNICAL MEMORANDUM 10
SUMMARY OF SEDIMENT CHARACTERIZATION FIELD OBSERVATIONS

TRANSECT: KPT52		Date Collected: 09/09/93		River Width (ft): 58.0		Distance to Right Edge of Water (ft): 8		
Distance From Right Bank (ft)	Water Depth (ft)	Water Velocity (fps)	Sediment Depth (ft)	Sediment Penetrated (ft)	Sediment Recovered (ft)	Sediment Type	Interval (ft)	Description
12	1.8	0.00	2.30	2.30	2.10	FINE	0-0.33	BROWN FINE SAND, SOME ORGANIC MATTER AND GRAVEL
							0.00-1.00	BROWN FINE SAND WITH SOME ORGANIC MATTER
							1.00-2.10	BROWN FINE TO COARSE SAND
24	4.4	0.00	1.60	1.20	0.90	FINE	0-0.33	BROWN FINE TO MEDIUM SAND, SOME COARSE SAND
							0.00-0.90	BROWN FINE TO MEDIUM SAND, SOME COARSE SAND
37	4.0	0.00	2.00	1.60	1.50	COARSE	0-0.33	GREY-BROWN FINE TO COARSE SAND AND GRAVEL
							0.00-0.90	GREY-BROWN FINE TO COARSE SAND AND GRAVEL
							0.90-1.50	BROWN FINE TO MEDIUM SAND WITH SOME SILT
49	3.6	0.00	1.40	1.40	0.80	COARSE	0-0.33	BROWN FINE TO COARSE SAND
							0.00-0.80	BROWN FINE TO COARSE SAND
60	1.2	0.00	2.80	2.60	1.90	FINE	0-0.33	DARK GREY-BROWN FINE TO MEDIUM SAND AND CLAY
							0.00-1.20	DARK GREY-BROWN FINE TO MEDIUM SAND AND CLAY
							1.20-1.90	BROWN FINE TO COARSE SAND

ALLIED PAPER, INC./PORTAGE CREEK/KALAMAZOO RIVER SUPERFUND SITE
TECHNICAL MEMORANDUM 10
SUMMARY OF SEDIMENT CHARACTERIZATION FIELD OBSERVATIONS

TRANSECT: KPT53		Date Collected: 09/09/93		River Width (ft): 91.0		Distance to Right Edge of Water (ft): 7		
Distance From Right Bank (ft)	Water Depth (ft)	Water Velocity (fps)	Sediment Depth (ft)	Sediment Penetrated (ft)	Sediment Recovered (ft)	Sediment Type	Interval (ft)	Description
16	1.3	0.00	3.70	3.70	2.70	FINE	0-0.33	DARK GREY FINE SAND WITH SOME SILT, TRACE OF ORGANIC MATTER
							0.00-0.80	DARK GREY FINE SAND WITH SOME SILT
							0.80-2.70	GREY AND DARK GREY VERY FINE TO MEDIUM SAND
31	3.8	0.00	1.70	1.70	0.90	FINE	0-0.33	GREY-BROWN FINE SAND
							0.00-0.90	GREY-BROWN FINE SAND ON TOP OF ROCKS OR LARGE GRAVEL
45	3.4	0.00	3.00	3.00	2.10	FINE	0-0.33	GREY-BROWN FINE SAND WITH SOME GRAVEL AND SOME ORGANIC DEBRIS (STICKS/WOOD)
							0.00-0.60	GREY-BROWN FINE SAND WITH SOME ORGANIC MATTER
							0.60-2.10	GREY-BROWN FINE TO COARSE SAND WITH SOME GRAVEL
60	5.5	0.00	1.50	1.30	0.90	COARSE	0-0.33	GREY-BROWN FINE TO COARSE SAND AND GRAVEL
							0.00-0.90	GREY-BROWN FINE-COARSE SAND & GRAVEL, WHITE HARD MATERIAL
74	5.5	0.00	1.30	1.10	0.80	COARSE	0-0.33	GREY-BROWN FINE SAND AND SILT WITH SOME GRAVEL
							0.00-0.80	GREY-BROWN FINE SAND AND SILT WITH SOME GRAVEL
87	5.1	0.00	1.90	1.50	0.90	COARSE	0-0.33	GREY-BROWN FINE TO COARSE SAND AND GRAVEL
							0.00-0.60	GREY-BROWN FINE TO COARSE SAND AND GRAVEL
							0.60-0.90	LIGHT BROWN FINE SAND

ALLIED PAPER, INC./PORTAGE CREEK/KALAMAZOO RIVER SUPERFUND SITE
TECHNICAL MEMORANDUM 10
SUMMARY OF SEDIMENT CHARACTERIZATION FIELD OBSERVATIONS

TRANSECT: KPT54		Date Collected: 09/09/93		River Width (ft): 119.0		Distance to Right Edge of Water (ft): 14		
Distance From Right Bank (ft)	Water Depth (ft)	Water Velocity (fps)	Sediment Depth (ft)	Sediment Penetrated (ft)	Sediment Recovered (ft)	Sediment Type	Interval (ft)	Description
21	3.9	0.85	2.30	1.70	0.70	COARSE	0-0.33	DARK GREY SILT WITH SOME COARSE SAND AND GRAVEL AND A SLIGHT ORGANIC ODOR
							0.00-0.70	DARK GREY SILT, GREY-BROWN FINE-COARSE SAND, SOME GRAVEL
42	6.0	1.70	1.00	1.00	0.60	COARSE	0-0.33	GREY-BROWN FINE TO COARSE SAND AND GRAVEL
							0.00-0.60	GREY-BROWN FINE-COARSE SAND/GRAVEL ON TOP HARD MATERIAL
61	5.2	1.95	1.80	1.80	0.50	COARSE	0-0.33	GREY-BROWN FINE TO COARSE SAND AND GRAVEL
							0.00-0.50	GREY-BROWN FINE TO COARSE SAND
81	4.5	2.05	2.50	2.30	0.90	COARSE	0-0.33	GREY-BROWN FINE TO MEDIUM SAND
							0.00-0.40	GREY-BROWN FINE TO MEDIUM SAND
							0.40-0.90	GREY-BROWN COARSE SAND, SOME GRAVEL
103	4.2	1.55	2.40	2.40	1.90	COARSE	0-0.33	GREY-BROWN FINE TO COARSE SAND, SOME GRAVEL
							0.00-1.10	GREY-BROWN FINE TO COARSE SAND, SOME GRAVEL
							1.10-1.90	DARK GREY FINE TO MEDIUM SAND
125	3.2	0.50	3.00	2.60	1.30	COARSE	0-0.33	GREY-BROWN FINE SAND WITH SOME MEDIUM TO COARSE SAND
							0.00-0.70	GREY FINE SAND
							0.70-1.30	GREY-BROWN FINE TO COARSE SAND WITH SOME GREY FINE SAND

ALLIED PAPER, INC./PORTAGE CREEK/KALAMAZOO RIVER SUPERFUND SITE
TECHNICAL MEMORANDUM 10
SUMMARY OF SEDIMENT CHARACTERIZATION FIELD OBSERVATIONS

TRANSECT: KPT55		Date Collected: 09/09/93		River Width (ft): 130.0		Distance to Right Edge of Water (ft): 7		
Distance From Right Bank (ft)	Water Depth (ft)	Water Velocity (fps)	Sediment Depth (ft)	Sediment Penetrated (ft)	Sediment Recovered (ft)	Sediment Type	Interval (ft)	Description
16	2.3	2.14	0.20	0.20	0.00	COARSE	0-0.33	GREY-BROWN FINE TO COARSE SAND AND GRAVEL
40	1.6	2.15	0.50	0.30	0.00	COARSE	0-0.33	GREY-BROWN FINE TO COARSE SAND AND GRAVEL
61	2.3	3.35	0.40	0.30	0.00	COARSE	0-0.33	GREY-BROWN FINE TO COARSE SAND AND GRAVEL WITH WHITE HARD CRUMBLY MATERIAL
84	3.1	3.50	0.30	0.30	0.00	COARSE	0-0.33	WHITE HARD CRUMBLY MATERIAL WITH SOME GREY-BROWN FINE-COARSE SAND & GRAVEL
104	2.8	3.40	0.20	0.20	0.00	COARSE	0-0.33	GREY-BROWN FINE TO COARSE SAND AND GRAVEL
127	2.2	3.25	0.30	0.20	0.00	COARSE	0-0.33	BROWN FINE TO COARSE SAND AND GRAVEL

ALLIED PAPER, INC./PORTAGE CREEK/KALAMASOO RIVER SUPERFUND SITE
 TECHNICAL MEMORANDUM 10
 SUMMARY OF SEDIMENT CHARACTERIZATION FIELD OBSERVATIONS

TRANSECT: KPT56		Date Collected: 09/10/93		River Width (ft): 215.0		Distance to Right Edge of Water (ft): 14		
Distance From Right Bank (ft)	Water Depth (ft)	Water Velocity (fps)	Sediment Depth (ft)	Sediment Penetrated (ft)	Sediment Recovered (ft)	Sediment Type	Interval (ft)	Description
22	3.7	0.00	0.40	0.40	0.00	COARSE	0-0.33	BROWN FINE TO COARSE SAND AND GRAVEL
55	5.2	0.00	0.90	0.70	0.60	COARSE	0-0.33	BROWN FINE TO COARSE SAND
							0.00-0.20	BROWN COARSE SAND AND GRAVEL
							0.20-0.60	BROWN FINE TO MEDIUM SAND
86	3.8	0.00	0.60	0.50	0.00	COARSE	0-0.33	
119	1.7	0.00	2.40	2.40	2.20	FINE	0-0.33	DARK GREY-BROWN FINE SAND WITH ORGANIC MATTER
							0.00-0.60	DARK GREY-BROWN FINE SAND WITH ORGANIC MATTER
							0.60-1.70	GREY FINE TO MEDIUM SAND
							1.70-2.20	DARK GREY VERY FINE SAND WITH SOME SILT
143	3.5	0.00	0.90	0.40	0.00	COARSE	0-0.33	GREY-BROWN FINE TO COARSE SAND AND GRAVEL
176	2.9	0.00	2.10	1.40	0.60	COARSE	0-0.33	GREY FINE TO COARSE SAND AND GRAVEL WITH WHITE HARD CRUMBLY MATERIAL
							0.00-0.60	GREY FINE-COARSE SAND/GRAVEL, WHITE HARD CRUMBLY MATERIAL
218	1.5	0.00	1.50	1.40	1.00	FINE	0-0.33	DARK GREY-BROWN SILT WITH VERY FINE SAND
							0.00-1.00	DARK GREY-BROWN SILT WITH VERY FINE SAND

ALLIED PAPER, INC./PORTAGE CREEK/KALAMAZOO RIVER SUPERFUND SITE
 TECHNICAL MEMORANDUM 10
 SUMMARY OF SEDIMENT CHARACTERIZATION FIELD OBSERVATIONS

TRANSECT: KPT57 Date Collected: 09/10/93 River Width (ft): 220.0 Distance to Right Edge of Water (ft): 11								
Distance From Right Bank (ft)	Water Depth (ft)	Water Velocity (fps)	Sediment Depth (ft)	Sediment Penetrated (ft)	Sediment Recovered (ft)	Sediment Type	Interval (ft)	Description
20	1.6	2.50	0.60	0.50	0.40	COARSE	0-0.33	GREY-BROWN FINE TO COARSE SAND AND GRAVEL ON TOP OF ROCKS
							0.00-0.40	GREY-BROWN FINE TO COARSE SAND
53	2.2	2.60	0.50	0.30	0.00	COARSE	0-0.33	GREY-BROWN FINE TO COARSE SAND AND GRAVEL WITH COBBLES ATOP & BETWEEN ROCKS
86	2.7	2.50	0.30	0.30	0.00	COARSE	0-0.33	GREY-BROWN FINE TO COARSE SAND AND GRAVEL ON TOP OF AND BETWEEN ROCKS
118	2.9	2.50	0.40	0.40	0.00	COARSE	0-0.33	GREY-BROWN FINE-COARSE SAND/GRAVEL, WHITE HARD CRUMBLY MATERIAL ON TOP ROCKS
151	2.2	2.45	0.30	0.30	0.00	COARSE	0-0.33	GREY-BROWN FINE TO COARSE SAND AND GRAVEL ON TOP OF AND BETWEEN ROCKS
184	2.1	2.25	0.30	0.30	0.00	COARSE	0-0.33	DARK GREY-BROWN FINE TO COARSE SAND AND GRAVEL ON TOP OF AND BETWEEN ROCKS
219	2.1	0.70	0.80	0.70	0.50	FINE	0-0.33	GREY-BROWN FINE TO MEDIUM SAND WITH SOME ORGANIC MATTER
							0.00-0.50	GREY-BROWN FINE TO MEDIUM SAND WITH SOME ORGANIC MATTER

ALLIED PAPER, INC./PORTAGE CREEK/KALAMAZOO RIVER SUPERFUND SITE
 TECHNICAL MEMORANDUM 10
 SUMMARY OF SEDIMENT CHARACTERIZATION FIELD OBSERVATIONS

TRANSECT: KPT58		Date Collected: 09/10/93		River Width (ft): 242.0		Distance to Right Edge of Water (ft): 22		
Distance From Right Bank (ft)	Water Depth (ft)	Water Velocity (fps)	Sediment Depth (ft)	Sediment Penetrated (ft)	Sediment Recovered (ft)	Sediment Type	Interval (ft)	Description
29	2.0	0.00	0.50	0.40	0.00	COARSE	0-0.33	GREY-BROWN FINE-COARSE SAND/GRAVEL, TRACE WHITE HARD CRUMBLY MATTER ON ROCKS
63	3.2	0.00	0.30	0.30	0.00	COARSE	0-0.33	GREY-BROWN FINE-COARSE SAND/GRAVEL, TRACE WHITE HARD CRUMBLY MATTER ON ROCKS
97	3.0	0.00	0.50	0.40	0.00	COARSE	0-0.33	GREY-BROWN FINE TO COARSE SAND AND GRAVEL ON TOP AND BETWEEN ROCKS
130	2.1	0.00	0.60	0.60	0.60	COARSE	0-0.33	GREY-BROWN FINE SAND, SOME COARSE SAND/GRAVEL ON TOP HARD CRUMBLY MATERIAL
							0.00-0.30	GREY-BROWN FINE SAND, SOME COARSE SAND AND GRAVEL
							0.30-0.60	WHITE HARD CRUMBLY MATERIAL
163	1.9	0.00	1.30	1.00	0.80	COARSE	0-0.33	GREY-BROWN FINE TO COARSE SAND AND GRAVEL ON TOP OF HARD CRUMBLY MATERIAL
							0.00-0.70	GREY-BROWN FINE TO COARSE SAND AND GRAVEL
							0.70-0.80	WHITE HARD CRUMBLY MATERIAL
217	1.7	0.00	1.00	0.90	0.50	COARSE	0-0.33	GREY-BROWN FINE SAND & ORGANIC MATTER ATOP ROCKS/WHITE HARD CRUMBLY MATERIAL
							0.00-0.50	GREY-BROWN FINE SAND WITH ORGANIC MATTER
254	2.0	0.00	1.20	0.90	0.70	COARSE	0-0.33	DARK GREY FINE TO MEDIUM SAND, SOME ORGANIC MATTER AND SOME GRAVEL
							0.00-0.70	DARK GREY FINE-MEDIUM SAND, SOME ORGANIC MATTER & GRAVEL

ALLIED PAPER, INC./PORTAGE CREEK/KALAMAZOO RIVER SUPERFUND SITE
TECHNICAL MEMORANDUM 10
SUMMARY OF SEDIMENT CHARACTERISATION FIELD OBSERVATIONS

TRANSECT: KPT59		Date Collected: 09/13/93		River Width (ft): 209.0		Distance to Right Edge of Water (ft): 8		
Distance From Right Bank (ft)	Water Depth (ft)	Water Velocity (fps)	Sediment Depth (ft)	Sediment Penetrated (ft)	Sediment Recovered (ft)	Sediment Type	Interval (ft)	Description
16	1.3	0.00	1.50	1.10	0.85	FINE	0-0.33	BROWN TO GREY FINE SAND, SOME ORGANIC MATTER
							0.00-0.50	BROWN TO GREY FINE SAND
							0.50-0.85	DARK GREY FINE SAND, TRACE SILT
43	1.9	0.00	1.10	0.90	0.70	COARSE	0-0.33	GREY-BROWN FINE TO COARSE SAND AND GRAVEL
							0.00-0.50	GREY-BROWN FINE TO COARSE SAND WITH GRAVEL
							0.50-0.70	DARK GREY FINE TO COARSE SAND, GRAVEL, TRACE GREY SILT
70	2.3	0.00	1.80	1.80	1.10	COARSE	0-0.33	BROWN FINE TO COARSE SAND AND GRAVEL, SOME WHITE HARD CRUMBLY MATERIAL
							0.00-1.10	BROWN TO GREY FINE TO COARSE SAND, SOME GRAVEL
105	3.7	0.00	1.40	1.00	0.90	COARSE	0-0.33	BROWN TO GREY FINE TO COARSE SAND WITH GRAVEL
							0.00-0.10	ROCKS
							0.10-0.90	BROWN-GREY FINE-COARSE SAND/GRAVEL, HARD WHITE MATERIAL
133	4.2	0.00	0.80	0.60	0.00	COARSE	0-0.33	GREY-BROWN FINE-COARSE SAND & GRAVEL/ROCKS, SOME HARD WHITE CRUMBLY MATERIAL
159	3.5	0.00	0.80	0.60	0.50	COARSE	0-0.33	GREY-BROWN FINE SAND, SOME MEDIUM-COARSE SAND/GRAVEL, TRACE CRUMBLY MATERIAL
							0.00-0.50	GREY-BROWN FINE-COARSE SAND, GRAVEL, WHITE HARD MATERIAL
186	3.0	0.00	2.00	2.00	1.40	COARSE	0-0.33	GREY-BROWN FINE TO COARSE SAND, SOME GRAVEL AND WHITE HARD CRUMBLY MATERIAL
							0.00-0.30	BROWN FINE SAND
							0.30-1.40	BROWN FINE TO COARSE SAND
205	1.9	0.00	1.10	1.10	1.10	FINE	0-0.33	DARK GREY SILT, TRACE OF FINE SAND WITH ORGANIC MATTER
							0.00-1.10	DARK BROWN TO DARK GREY SILT, SOME FINE SAND & ORGANICS

ALLIED PAPER, INC./PORTAGE CREEK/KALAMAZOO RIVER SUPERFUND SITE
 TECHNICAL MEMORANDUM 10
 SUMMARY OF SEDIMENT CHARACTERIZATION FIELD OBSERVATIONS

TRANSECT: KPT60		Date Collected: 09/13/93		River Width (ft): 221.0		Distance to Right Edge of Water (ft): 7		
Distance From Right Bank (ft)	Water Depth (ft)	Water Velocity (fps)	Sediment Depth (ft)	Sediment Penetrated (ft)	Sediment Recovered (ft)	Sediment Type	Interval (ft)	Description
15	4.5	0.00	0.80	0.40	0.00	COARSE	0-0.33	DARK BROWN TO DARK GREY FINE TO COARSE SAND WITH GRAVEL
46	4.2	0.00	3.00	3.00	1.50	COARSE	0-0.33	BROWN FINE SAND, ROCKS
							0.00-0.10	ROCKS
							0.10-0.30	BROWN FINE SAND
							0.30-1.50	GREY-BROWN FINE TO COARSE SAND & GRAVEL, TRACE FINE SAND
75	4.3	0.00	2.70	2.70	0.00	COARSE	0-0.33	GREY TO BROWN FINE TO COARSE SAND WITH GRAVEL & WHITE HARD CRUMBLY MATERIAL
105	4.1	0.00	0.90	0.00	0.00	COARSE	0-0.33	GREY-BROWN FINE TO COARSE SAND AND GRAVEL
134	3.7	0.00	1.20	1.00	0.55	COARSE	0-0.33	BROWN FINE TO MEDIUM SAND WITH ORGANIC MATTER
							0.00-0.55	BROWN FINE TO MEDIUM SAND
164	2.0	0.00	2.00	1.90	1.60	FINE	0-0.33	DARK BROWN AND DARK GREY MOSTLY FINE SAND & SILT, TRACE COARSE SAND & GRAVEL
							0.00-0.40	DARK BROWN SILT AND FINE SAND WITH ORGANIC MATTER
							0.40-1.60	BROWN FINE TO COARSE SAND WITH SOME GRAVEL
192	1.4	0.00	2.10	2.10	1.40	FINE	0-0.33	DARK BROWN TO DARK GREY FINE SAND WITH ORGANIC MATTER
							0.00-0.40	DARK BROWN TO DARK GREY FINE SAND WITH ORGANIC MATTER
							0.40-1.40	DARK GREY-BROWN FINE TO MEDIUM SAND
219	1.0	0.00	1.90	1.90	1.70	FINE	0-0.33	DARK GREY FINE TO MEDIUM SAND AND SILT WITH ORGANIC MATERIAL
							0.00-0.70	DARK GREY FINE TO MEDIUM SAND & SILT WITH ORGANIC MATTER
							0.70-1.00	GREY-BROWN FINE SAND AND SILT
							1.00-1.70	BROWN FINE SAND WITH WHITE HARD CRUMBLY ROCK MATERIAL

ALLIED PAPER, INC./PORTAGE CREEK/KALAMAZOO RIVER SUPERFUND SITE
TECHNICAL MEMORANDUM 10
SUMMARY OF SEDIMENT CHARACTERIZATION FIELD OBSERVATIONS

TRANSECT: KPT61		Date Collected: 09/14/93		River Width (ft): 265.0		Distance to Right Edge of Water (ft): 20		
Distance From Right Bank (ft)	Water Depth (ft)	Water Velocity (fps)	Sediment Depth (ft)	Sediment Penetrated (ft)	Sediment Recovered (ft)	Sediment Type	Interval (ft)	Description
30	1.7	0.70	0.90	0.90	0.60	COARSE	0-0.33	GREY FINE-COARSE SAND, SOME GRAVEL/GREY HARD CRUMBLY MATERIAL, ORGANIC ODOR
							0.00-0.20	BROWN FINE TO MEDIUM SAND
							0.20-0.60	GREY-BROWN FINE-COARSE SAND, GRAVEL, HARD GREY MATERIAL
67	2.0	0.70	0.70	0.50	0.50	FINE	0-0.33	DARK GREY FINE TO COARSE SAND WITH SILT, ORGANIC MATTER, ORGANIC ODOR
							0.00-0.50	DARK GREY FINE TO COARSE SAND WITH SILT, ORGANIC MATTER
104	1.9	1.40	1.20	0.80	0.60	FINE	0-0.33	BROWN FINE TO MEDIUM SAND, SOME VEGETATION
							0.00-0.30	BROWN FINE TO MEDIUM SAND, SOME VEGETATION
							0.30-0.60	GREY-BROWN FINE TO COARSE SAND, GRAVEL, ROCK
141	2.6	2.25	0.20	0.20	0.20	COARSE	0-0.33	BROWN FINE-MEDIUM SAND, GREY/ORANGE/WHITE HARD CRUMBLY MATERIAL WITH ROCKS
178	2.9	2.50	0.30	0.30	0.30	COARSE	0-0.33	GREY-BROWN FINE TO COARSE SAND & GRAVEL, GREY-WHITE HARD CRUMBLY MATERIAL
215	3.0	1.50	0.50	0.50	0.50	COARSE	0-0.33	BROWN FINE TO COARSE SAND WITH GRAVEL, ROCKS
							0.00-0.10	ROCKS
							0.10-0.50	FINE TO COARSE SAND AND GRAVEL
251	2.0	0.50	0.70	0.60	0.00	COARSE	0-0.33	GREY-BROWN FINE TO MEDIUM SAND, ROCKS, SOME WHITE HARD CRUMBLY MATERIAL
275	2.5	0.60	1.60	1.60	1.30	FINE	0-0.33	BROWN FINE TO MEDIUM SAND, SOME FINE SAND
							0.00-1.30	BROWN FINE TO COARSE SAND, SOME FINE SAND

ALLIED PAPER, INC./PORTAGE CREEK/KALAMA100 RIVER SUPERFUND SITE
TECHNICAL MEMORANDUM 10
SUMMARY OF SEDIMENT CHARACTERISATION FIELD OBSERVATIONS

TRANSECT: KPT62		Date Collected: 09/14/93		River Width (ft): 236.0		Distance to Right Edge of Water (ft): 11		
Distance From Right Bank (ft)	Water Depth (ft)	Water Velocity (fps)	Sediment Depth (ft)	Sediment Penetrated (ft)	Sediment Recovered (ft)	Sediment Type	Interval (ft)	Description
16	2.1	0.00	1.00	1.00	0.90	FINE	0-0.33	BLACK CLAYEY SILT, TRACE OF FINE SAND, STRONG ORGANIC ODOR
							0.00-0.70	BLACK CLAYEY SILT, TRACE OF FINE SAND
							0.70-0.90	DARK GREY FINE SAND
54	2.8	0.00	0.40	0.40	0.00	FINE	0-0.33	BROWN FINE TO COARSE SAND AND GRAVEL, TRACE OF WHITE HARD CRUMBLY MATERIAL
89	1.8	0.00	1.40	1.10	1.00	FINE	0-0.33	BROWN FINE SAND, SOME MEDIUM SAND, ORGANIC MATTER
							0.00-1.00	BROWN FINE TO MEDIUM SAND
126	2.8	0.00	1.20	1.20	0.90	FINE	0-0.33	BROWN FINE TO COARSE SAND WITH CLAYEY SILT, ORGANIC MATTER
							0.00-0.10	BROWN FINE TO COARSE SAND
							0.10-0.90	DARK BROWN TO BLACK CLAYEY SILT, ORGANIC MATTER
161	3.2	0.00	0.80	0.00	0.00	FINE	0-0.33	BROWN FINE TO COARSE SAND WITH CLAYEY SILT, ORGANIC MATTER
198	2.5	0.00	0.80	0.70	0.60	COARSE	0-0.33	BROWN FINE TO COARSE SAND WITH GRAVEL
							0.00-0.60	FINE TO COARSE SAND AND GRAVEL
238	0.7	0.00	3.30	3.30	1.40	FINE	0-0.33	BROWN FINE SAND WITH BLACK SILTY CLAY WITH FINE SAND
							0.00-0.30	BROWN FINE SAND
							0.30-1.10	BLACK SILTY CLAY, SOME FINE SAND
							1.10-1.40	DARK GREY FINE TO COARSE SAND AND GRAVEL

ALLIED PAPER, INC./PORTAGE CREEK/KALAMAZOO RIVER SUPERFUND SITE
 TECHNICAL MEMORANDUM 10
 SUMMARY OF SEDIMENT CHARACTERIZATION FIELD OBSERVATIONS

TRANSECT: KPT63		Date Collected: 09/14/93		River Width (ft): 118.0		Distance to Right Edge of Water (ft): 9		
Distance From Right Bank (ft)	Water Depth (ft)	Water Velocity (fps)	Sediment Depth (ft)	Sediment Penetrated (ft)	Sediment Recovered (ft)	Sediment Type	Interval (ft)	Description
18	3.0	0.00	2.50	2.50	2.30	FINE	0-0.33	GREY-BROWN FINE TO MEDIUM SAND
							0.00-1.60	GREY-BROWN FINE TO MEDIUM SAND
							1.60-2.30	BLACK TO DARK GREY SILTY CLAY WITH FINE SAND
40	3.8	0.00	2.00	1.70	1.60	FINE	0-0.33	BROWN FINE TO MEDIUM SAND
							0.00-0.90	BROWN FINE TO MEDIUM SAND
							0.90-1.60	BLACK SILTY CLAY WITH FINE SAND
60	4.1	0.00	1.40	1.40	1.20	FINE	0-0.33	GREY-BROWN FINE TO COARSE SAND
							0.00-1.20	BROWN FINE TO COARSE SAND
80	6.6	0.00	0.60	0.00	0.00	COARSE	0-0.33	NO TOP 4" SAMPLE DUE TO ROCK, GRAVEL BOTTOM
98	6.8	0.00	0.20	0.00	0.00	COARSE	0-0.33	NO SAMPLE, ROCK BOTTOM
116	3.6	0.00	1.60	1.40	1.00	FINE	0-0.33	DARK GREY SILT WITH FINE TO MEDIUM SAND
							0.00-1.00	GREY-BROWN FINE TO MEDIUM SAND

ALLIED PAPER, INC./PORTAGE CREEK/KALAMAZOO RIVER SUPERFUND SITE
TECHNICAL MEMORANDUM 10
SUMMARY OF SEDIMENT CHARACTERIZATION FIELD OBSERVATIONS

TRANSECT: KPT64		Date Collected: 09/14/93		River Width (ft): 154.0		Distance to Right Edge of Water (ft): 8		
Distance From Right Bank (ft)	Water Depth (ft)	Water Velocity (fps)	Sediment Depth (ft)	Sediment Penetrated (ft)	Sediment Recovered (ft)	Sediment Type	Interval (ft)	Description
15	3.6	0.00	4.00	3.80	2.80	FINE	0-0.33	BLACK SILTY CLAY, STRONG ORGANIC ODOR
							0.00-0.10	BROWN FINE SAND
							0.10-1.70	BLACK SILTY CLAY
							1.70-1.90	BROWN FINE SAND
							1.90-2.80	DARK BROWN SILTY CLAY WITH FINE SAND
44	4.8	0.00	2.50	2.50	2.30	FINE	0-0.33	BLACK SILTY CLAY, MODERATE ORGANIC ODOR
							0.00-1.00	BLACK SILTY CLAY
							1.00-1.70	BROWN FINE SAND, SOME SILTY CLAY
							1.70-2.30	DARK BROWN SILTY CLAY WITH SOME FINE SAND
71	5.0	0.00	2.20	1.90	1.60	FINE	0-0.33	BLACK SILTY CLAY, SOME GRAVEL, TRACE OF FINE SAND
							0.00-0.10	BROWN FINE TO MEDIUM SAND
							0.10-0.80	BLACK SILTY CLAY
							0.80-1.60	DARK GREY-BROWN FINE SAND
101	5.1	0.00	1.60	1.50	1.00	FINE	0-0.33	DARK GREY SILTY CLAY
							0.00-0.90	DARK BROWN SILTY CLAY
							0.90-1.00	DARK BROWN FINE SAND
127	5.0	0.00	1.60	1.60	1.30	FINE	0-0.33	DARK GREY FINE SAND AND SILT WITH LOOSE CLAY
							0.00-0.50	BROWN FINE TO MEDIUM SAND, SOME SILT
							0.50-1.30	DARK BROWN SILTY CLAY

ALLIED PAPER, INC./PORTAGE CREEK/KALAMAZOO RIVER SUPERFUND SITE
 TECHNICAL MEMORANDUM 10
 SUMMARY OF SEDIMENT CHARACTERIZATION FIELD OBSERVATIONS

TRANSECT: KPT64		Date Collected: 09/14/93		River Width (ft): 154.0		Distance to Right Edge of Water (ft): 8		
Distance From Right Bank (ft)	Water Depth (ft)	Water Velocity (fps)	Sediment Depth (ft)	Sediment Penetrated (ft)	Sediment Recovered (ft)	Sediment Type	Interval (ft)	Description
154	2.8	0.00	1.70	1.70	1.70	FINE	0-0.33	DARK GREY FINE SAND AND SILT WITH LOOSE CLAY, ORGANIC MATTER
							0.00-0.30	BROWN FINE SAND AND CHUNKS OF GREY CLAY
							0.30-1.70	GREY TO DARK GREY SILTY CLAY

ALLIED PAPER, INC./PORTAGE CREEK/KALAMAZOO RIVER SUPERFUND SITE
TECHNICAL MEMORANDUM 10
SUMMARY OF SEDIMENT CHARACTERIZATION FIELD OBSERVATIONS

TRANSECT: KPT65		Date Collected: 09/15/93		River Width (ft): 133.0		Distance to Right Edge of Water (ft): 8		
Distance From Right Bank (ft)	Water Depth (ft)	Water Velocity (fps)	Sediment Depth (ft)	Sediment Penetrated (ft)	Sediment Recovered (ft)	Sediment Type	Interval (ft)	Description
15	6.0	0.90	2.50	2.00	1.70	FINE	0-0.33	DARK BROWN TO BLACK SILTY CLAY, TRACE FINE SAND, MILD ORGANIC ODOR
							0.00-1.70	DARK BROWN TO BLACK SILTY CLAY, TRACE FINE SAND
39	7.8	2.00	1.40	1.40	1.10	FINE	0-0.33	DARK BROWN TO BLACK SILTY CLAY, SOME FINE SAND
							0.00-0.10	BROWN FINE SAND
							0.10-1.10	DARK BROWN TO BLACK SILTY CLAY, SOME FINE SAND
62	8.0	1.40	0.80	0.80	0.80	FINE	0-0.33	BLACK CLAY WITH TRACE MEDIUM SAND, MODERATE ORGANIC ODOR
							0.00-0.50	BROWN TO GREY FINE TO MEDIUM SAND, SOME BLACK SILTY CLAY
							0.50-0.70	DARK GREY TO BLACK SILTY CLAY WITH SOME FINE SAND
							0.70-0.80	ROCK
84	7.7	2.50	1.00	0.90	0.70	FINE	0-0.33	BROWN TO GREY FINE TO COARSE SAND, TRACE SILT
							0.00-0.70	BROWN TO GREY FINE TO COARSE SAND
107	5.5	1.15	2.50	2.50	2.20	FINE	0-0.33	GREY TO DARK GREY SILTY CLAY WITH SOME FINE SAND, ORGANICS, ORGANIC ODOR
							0.00-1.50	DARK GREY TO GREY SILTY CLAY, SOME FINE SAND, ORGANICS
							1.50-2.20	DARK GREY FINE TO MEDIUM SAND WITH SOME GREY SILTY CLAY
130	2.6	0.11	4.50	4.50	2.90	FINE	0-0.33	BLACK FINE SAND AND SILT, ORGANIC MATTER, MILD ORGANIC ODOR
							0.00-0.70	BLACK FINE SAND AND SILT, ORGANIC MATTER
							0.70-2.90	DARK GREY TO BLACK SILTY CLAY, TRACE FINE SAND

ALLIED PAPER, INC./PORTAGE CREEK/KALAMAZOO RIVER SUPERFUND SITE
TECHNICAL MEMORANDUM 10
SUMMARY OF SEDIMENT CHARACTERIZATION FIELD OBSERVATIONS

TRANSECT: KPT66		Date Collected: 09/15/93		River Width (ft): 143.0		Distance to Right Edge of Water (ft): 6		
Distance From Right Bank (ft)	Water Depth (ft)	Water Velocity (fps)	Sediment Depth (ft)	Sediment Penetrated (ft)	Sediment Recovered (ft)	Sediment Type	Interval (ft)	Description
14	6.4	0.00	4.20	4.20	2.70	FINE	0-0.33	BLACK SILTY CLAY WITH TRACE OF FINE SAND & ORGANIC MATTER, MILD ORGANIC ODOR
							0.00-0.10	FINE SAND AND SILT
							0.10-2.70	BLACK SILTY CLAY
33	6.9	0.00	3.80	3.80	2.70	FINE	0-0.33	DARK GREY SILTY CLAY WITH SOME COARSE SAND AND ROUNDED COBBLE
							0.00-0.20	BROWN FINE TO COARSE SAND WITH GRAVEL
							0.20-2.70	BLACK SILTY CLAY WITH SOME DARK GREY FINE SAND
53	6.1	0.00	4.20	4.20	2.90	COARSE	0-0.33	DARK GREY SILT WITH SOME FINE TO COARSE SAND AND ROUNDED COBBLE
							0.00-0.30	DARK GREY SILT WITH SOME COARSE SAND AND ROUNDED COBBLE
							0.30-2.90	DARK GREY SILTY CLAY
75	5.5	0.00	4.70	4.70	3.00	FINE	0-0.33	DARK GREY CLAY WITH BROWN FINE TO COARSE SAND AND GRAVEL
							0.00-0.20	DARK GREY CLAY WITH BROWN FINE TO COARSE SAND AND GRAVEL
							0.20-3.00	DARK GREY TO BLACK SILTY CLAY
96	5.2	0.00	5.20	5.20	3.10	FINE	0-0.33	DARK GREY CLAY WITH BROWN FINE TO COARSE SAND AND GRAVEL
							0.00-0.30	BROWN FINE TO COARSE SAND AND GRAVEL
							0.30-3.10	DARK GREY TO BLACK SILTY CLAY WITH ORGANIC MATERIAL
116	4.8	0.00	4.50	4.50	3.20	COARSE	0-0.33	GREY-BROWN FINE TO COARSE SAND AND GRAVEL
							0.00-0.50	GREY-BROWN FINE TO COARSE SAND AND GRAVEL
							0.50-3.20	DARK GREY TO BLACK SILTY CLAY WITH TRACE OF FINE SAND

ALLIED PAPER, INC./PORTAGE CREEK/KALAMAZOO RIVER SUPERFUND SITE
 TECHNICAL MEMORANDUM 10
 SUMMARY OF SEDIMENT CHARACTERIZATION FIELD OBSERVATIONS

TRANSECT: KPT66		Date Collected: 09/15/93		River Width (ft): 143.0		Distance to Right Edge of Water (ft): 6		
Distance From Right Bank (ft)	Water Depth (ft)	Water Velocity (fps)	Sediment Depth (ft)	Sediment Penetrated (ft)	Sediment Recovered (ft)	Sediment Type	Interval (ft)	Description
139	4.5	0.00	4.80	4.80	3.00	FINE	0-0.33	DARK GREY TO BLACK CLAY, TRACE FINES, ORGANIC MATTER
							0.00-1.00	BROWN FINE SAND AND SILT, SOME GREY CLAY ON TOP
							1.00-3.00	DARK GREY-BLACK CLAY, TRACE FINE SAND

ALLIED PAPER, INC./PORTAGE CREEK/KALAMAZOO RIVER SUPERFUND SITE
TECHNICAL MEMORANDUM 10
SUMMARY OF SEDIMENT CHARACTERIZATION FIELD OBSERVATIONS

TRANSECT: KPT67		Date Collected: 09/15/93		River Width (ft): 210.0		Distance to Right Edge of Water (ft): 6		
Distance From Right Bank (ft)	Water Depth (ft)	Water Velocity (fps)	Sediment Depth (ft)	Sediment Penetrated (ft)	Sediment Recovered (ft)	Sediment Type	Interval (ft)	Description
16	4.3	0.00	6.00	6.00	3.40	FINE	0-0.33	DARK GREY TO BLACK CLAYEY SILT, ORGANIC ODOR, SLIGHT OIL SHEEN
							0.00-3.40	DARK GREY TO BLACK CLAYEY SILT
39	7.1	0.00	2.50	2.50	2.20	FINE	0-0.33	DARK GREY TO BLACK CLAYEY SILT, ORGANIC ODOR, SOME GREY CHUNKS OF CLAY
							0.00-0.20	BROWN SILT WITH SOME FINE SAND AND GREY CHUNKS OF CLAY
							0.20-2.20	DARK GREY TO BLACK CLAYEY SILT
69	7.3	0.00	2.70	2.70	2.10	FINE	0-0.33	DARK GREY SILTY CLAY WITH FINE TO COARSE SAND
							0.00-0.10	BROWN SILT WITH FINE TO COARSE SAND
							0.10-2.10	DARK GREY SILTY CLAY
98	6.2	0.00	4.60	4.60	2.70	FINE	0-0.33	GREY TO DARK GREY SILTY CLAY WITH ORGANIC MATTER
							0.00-2.70	DARK GREY TO BLACK SILTY CLAY
126	5.8	0.00	4.20	4.20	2.70	FINE	0-0.33	GREY TO DARK GREY SILTY CLAY WITH SOME COARSE SAND, ORGANIC MATTER AND ODOR
							0.00-0.20	BROWN SILT WITH FINE TO COARSE SAND
							0.20-2.70	DARK GREY TO BLACK SILTY CLAY
156	5.5	0.00	4.90	4.90	2.70	FINE	0-0.33	BROWN FINE TO COARSE SAND AND DARK GREY TO BLACK SILTY CLAY
							0.00-0.20	BROWN FINE TO COARSE SAND
							0.20-2.70	DARK GREY TO BLACK SILTY CLAY
183	4.2	0.00	5.50	5.50	3.30	FINE	0-0.33	BROWN FINE TO COARSE SAND AND DARK GREY TO BLACK SILTY CLAY, ORGANIC ODOR
							0.00-0.30	BROWN FINE TO COARSE SAND
							0.30-3.30	DARK GREY TO BLACK SILTY CLAY

ALLIED PAPER, INC./PORTAGE CREEK/KALAMAZOO RIVER SUPERFUND SITE
 TECHNICAL MEMORANDUM 10
 SUMMARY OF SEDIMENT CHARACTERIZATION FIELD OBSERVATIONS

TRANSECT: KPT67		Date Collected: 09/15/93		River Width (ft): 210.0		Distance to Right Edge of Water (ft): 6		
Distance								
From	Water	Water	Sediment	Sediment	Sediment	Sediment		
Right Bank	Depth	Velocity	Depth	Penetrated	Recovered	Type	Interval	Description
(ft)	(ft)	(fps)	(ft)	(ft)	(ft)		(ft)	
208	2.7	0.00	2.60	2.60	1.70	FINE	0-0.33	DARK GREY TO BLACK SILTY CLAY
							0.00-1.70	DARK GREY TO BLACK SILTY CLAY

ALLIED PAPER, INC./PORTAGE CREEK/KALAMAZOO RIVER SUPERFUND SITE
TECHNICAL MEMORANDUM 10
SUMMARY OF SEDIMENT CHARACTERIZATION FIELD OBSERVATIONS

TRANSECT: KPT68		Date Collected: 09/16/93		River Width (ft): 141.0		Distance to Right Edge of Water (ft): 0		
Distance From Right Bank (ft)	Water Depth (ft)	Water Velocity (fps)	Sediment Depth (ft)	Sediment Penetrated (ft)	Sediment Recovered (ft)	Sediment Type	Interval (ft)	Description
25	3.0	0.00	0.80	0.60	0.00	FINE	0-0.33	BROWN FINE TO COARSE SAND, TRACE SILT, VEGETATION
84	3.6	0.00	1.40	0.80	0.70	FINE	0-0.33	BROWN FINE TO COARSE SAND WITH SILT, TRACE GRAVEL
							0.00-0.70	BROWN FINE TO COARSE SAND WITH SILT, TRACE GRAVEL
147	2.3	0.00	2.50	2.50	1.80	FINE	0-0.33	GREY TO DARK GREY FINE TO COARSE SAND
							0.00-1.80	GREY TO DARK GREY FINE TO COARSE SAND
224	1.7	1.20	0.50	0.50	0.50	FINE	0-0.33	GREY TO DARK GREY CLAY WITH COARSE SAND, TRACE FINE SAND
							0.00-0.10	BROWN FINE TO COARSE SAND
							0.10-0.50	GREY TO DARK GREY CLAY
308	3.4	1.50	1.60	1.10	0.90	COARSE	0-0.33	GREY-BROWN FINE TO COARSE SAND AND GRAVEL
							0.00-0.10	BROWN FINE TO MEDIUM SAND
							0.10-0.90	GREY-BROWN FINE TO COARSE SAND
402	5.0	1.50	4.20	4.20	2.30	COARSE	0-0.33	BROWN TO GREY FINE TO COARSE SAND
							0.00-2.30	BROWN TO GREY FINE TO COARSE SAND
483	6.0	1.30	2.00	2.00	0.70	COARSE	0-0.33	GREY-BROWN FINE TO COARSE SAND, SOME GRAVEL
							0.00-0.70	GREY-BROWN FINE TO COARSE SAND, SOME GRAVEL
567	4.2	-0.50	0.00	0.00	0.00	COARSE	0-0.33	NO SAMPLE - ROCK, COBBLE

ALLIED PAPER, INC./PORTAGE CREEK/KALAMAZOO RIVER SUPERFUND SITE
TECHNICAL MEMORANDUM 10
SUMMARY OF SEDIMENT CHARACTERIZATION FIELD OBSERVATIONS

TRANSECT: KPT69		Date Collected: 09/16/93		River Width (ft): 302.0		Distance to Right Edge of Water (ft): 6		
Distance From Right Bank (ft)	Water Depth (ft)	Water Velocity (fps)	Sediment Depth (ft)	Sediment Penetrated (ft)	Sediment Recovered (ft)	Sediment Type	Interval (ft)	Description
15	1.8	0.00	2.30	2.30	1.70	FINE	0-0.33	GREY FINE SAND AND SILT
							0.00-0.20	BROWN-GREY FINE SAND
							0.20-1.70	GREY SILT AND FINE SAND
54	4.7	0.00	0.50	0.00	0.00	COARSE	0-0.33	BROWN-GREY FINE TO COARSE SAND AND GRAVEL
87	3.0	0.00	1.70	1.50	1.10	COARSE	0-0.33	BROWN-GREY FINE TO COARSE SAND AND GRAVEL
							0.00-0.10	ROCKS AND GRAVEL
							0.10-1.10	GREY-BROWN FINE TO COARSE SAND
122	1.1	0.00	3.50	3.20	2.60	FINE	0-0.33	GREY FINE SAND
							0.00-1.90	GREY TO DARK GREY FINE SAND
							1.90-2.30	GREY FINE TO MEDIUM SAND
							2.30-2.50	GREY FINE SAND
							2.50-2.60	ROCK
209	0.3	0.00	3.90	3.00	1.90	COARSE	0-0.33	GREY-BROWN FINE TO COARSE SAND AND GRAVEL
							0.00-1.00	GREY-BROWN FINE TO COARSE SAND AND GRAVEL
							1.00-1.20	GREY FINE SAND
							1.20-1.30	GREY-BROWN FINE TO COARSE SAND
							1.30-1.90	GREY FINE SAND AND SILT
257	1.1	0.00	2.30	1.90	1.70	COARSE	0-0.33	BROWN FINE TO MEDIUM SAND, TRACE COARSE SAND
							0.00-1.70	BROWN-GREY FINE TO MEDIUM SAND

ALLIED PAPER, INC./PORTAGE CREEK/KALAMAZOO RIVER SUPERFUND SITE
 TECHNICAL MEMORANDUM 10
 SUMMARY OF SEDIMENT CHARACTERIZATION FIELD OBSERVATIONS

TRANSECT: KPT69		Date Collected: 09/16/93		River Width (ft): 302.0		Distance to Right Edge of Water (ft): 6		
Distance From Right Bank (ft)	Water Depth (ft)	Water Velocity (fps)	Sediment Depth (ft)	Sediment Penetrated (ft)	Sediment Recovered (ft)	Sediment Type	Interval (ft)	Description
280	3.5	0.00	1.70	1.70	1.00	FINE	0-0.33	BROWN-GREY FINE TO COARSE SAND
							0.00-0.05	COARSE SAND AND GRAVEL
							0.05-1.00	BROWN-GREY FINE TO MEDIUM SAND
299	3.4	0.00	1.40	1.30	1.10	FINE	0-0.33	GREY CLAYEY SILT WITH SOME FINE TO COARSE SAND
							0.00-0.60	GREY TO DARK GREY CLAYEY SILT, TRACE COARSE SAND
							0.60-1.10	GREY-BROWN FINE TO COARSE SAND

ALLIED PAPER, INC./PORTAGE CREEK/KALAMAZOO RIVER SUPERFUND SITE
TECHNICAL MEMORANDUM 10
SUMMARY OF SEDIMENT CHARACTERIZATION FIELD OBSERVATIONS

TRANSECT: KPT70		Date Collected: 09/16/93		River Width (ft): 143.0		Distance to Right Edge of Water (ft): 0		
Distance From Right Bank (ft)	Water Depth (ft)	Water Velocity (fps)	Sediment Depth (ft)	Sediment Penetrated (ft)	Sediment Recovered (ft)	Sediment Type	Interval (ft)	Description
83	1.0	1.25	4.20	4.20	3.20	FINE	0-0.33	GREY-BROWN FINE TO COARSE SAND, TRACE SILT
							0.00-0.50	BROWN-GREY FINE TO MEDIUM SAND
							0.50-1.80	GREY MEDIUM TO COARSE SAND, TRACE FINE SAND
							1.80-2.10	GREY FINE SAND, TRACE MEDIUM SAND
							2.10-3.20	BROWN PEAT
131	2.2	1.05	3.20	3.10	1.60	FINE	0-0.33	BROWN FINE SAND AND SILT
							0.00-0.10	LIGHT BROWN FINE SAND
							0.10-1.00	BROWN FINE SAND AND SILT
							1.00-1.60	BROWN FINE SAND, TRACE SILT
450	1.4	1.52	3.50	3.50	2.30	FINE	0-0.33	BROWN TO GREY FINE SAND
							0.00-1.30	BROWN TO GREY FINE SAND
							1.30-2.30	DARK GREY FINE TO MEDIUM SAND
519	7.0	0.90	0.70	0.60	0.60	COARSE	0-0.33	BROWN FINE TO COARSE SAND, TRACE WHITE HARD CRUMBLY MATERIAL
							0.00-0.60	BROWN FINE TO COARSE SAND
655	1.3	1.40	2.90	2.90	2.40	COARSE	0-0.33	GREY-BROWN FINE TO COARSE SAND AND GRAVEL
							0.00-2.40	BROWN FINE TO COARSE SAND

ALLIED PAPER, INC./PORTAGE CREEK/KALAMAZOO RIVER SUPERFUND SITE
 TECHNICAL MEMORANDUM 10
 SUMMARY OF SEDIMENT CHARACTERIZATION FIELD OBSERVATIONS

TRANSECT: KPT70		Date Collected: 09/16/93		River Width (ft): 388.0		Distance to Right Edge of Water (ft): 0		
Distance From Right Bank (ft)	Water Depth (ft)	Water Velocity (fps)	Sediment Depth (ft)	Sediment Penetrated (ft)	Sediment Recovered (ft)	Sediment Type	Interval (ft)	Description
772	1.0	1.60	5.50	5.50	3.10	COARSE	0-0.33	GREY SILT WITH FINE SAND UNDER BROWN FINE TO COARSE SAND
							0.00-0.20	BROWN FINE TO COARSE SAND
							0.20-0.60	GREY FINE SAND WITH SILT
							0.60-2.90	DARK GREY TO BLACK SILT, FINE SAND & ORGANICS, TRACE CLAY
							2.90-3.10	GREY FINE SAND
1017	2.4	1.40	5.20	5.10	3.90	FINE	0-0.33	GREY-BROWN FINE TO COARSE SAND AND SILT
							0.00-1.70	BROWN-GREY FINE/COARSE SAND
							1.70-2.90	DARK GREY CLAYEY SILT WITH TRACE FINE SAND
1063	2.4	0.85	3.00	2.70	2.10	COARSE	0-0.33	BROWN FINE TO COARSE SAND
							0.00-0.10	BROWN FINE SAND
							0.10-2.10	BROWN FINE TO COARSE SAND, SOME GRAVEL

ALLIED PAPER, INC./PORTAGE CREEK/KALAMAZOO RIVER SUPERFUND SITE
TECHNICAL MEMORANDUM 10
SUMMARY OF SEDIMENT CHARACTERIZATION FIELD OBSERVATIONS

TRANSECT: KPT71		Date Collected: 09/17/93		River Width (ft): 239.0		Distance to Right Edge of Water (ft): 0		
Distance From Right Bank (ft)	Water Depth (ft)	Water Velocity (fps)	Sediment Depth (ft)	Sediment Penetrated (ft)	Sediment Recovered (ft)	Sediment Type	Interval (ft)	Description
56	0.9	0.00	6.80	6.80	4.50	FINE	0-0.33	DARK GREY FINE SAND, TRACE VEGETATION
							0.00-0.40	DARK GREY FINE SAND
							0.40-1.10	DARK GREY FINE SAND, TRACE SILT
							1.10-1.90	GREY FINE TO MEDIUM SAND
							1.90-3.80	DARK GREY TO BLACK SILTY CLAY
							3.80-4.50	GREY FINE SAND
120	6.3	0.00	4.10	4.10	3.10	FINE	0-0.33	BROWN FINE SAND ON TOP OF DARK GREY SILTY CLAY, STRONG ORGANIC ODOR
							0.00-0.10	BROWN FINE SAND
							0.10-2.00	DARK GREY SILTY CLAY
							2.00-3.10	GREY FINE SAND
187	3.5	0.00	4.80	4.80	3.60	COARSE	0-0.33	BROWN TO GREY FINE TO COARSE SAND, TRACE VEGETATION
							0.00-1.50	BROWN TO GREY FINE TO COARSE SAND
							1.50-3.00	DARK GREY BLACK SILTY CLAY
							3.00-3.60	BROWN-GREY FINE SAND
273	5.7	0.00	2.80	2.50	1.60	COARSE	0-0.33	BROWN TO DARK GREY FINE TO COARSE SAND
							0.00-1.60	BROWN TO DARK GREY FINE TO COARSE SAND, TRACE SILT
443	2.4	0.00	4.80	4.60	3.90	FINE	0-0.33	DARK GREY FINE SAND AND SILT
							0.00-0.60	BROWN TO DARK GREY FINE SAND AND SILT
							0.60-2.30	DARK GREY FINE SAND AND SILT WITH VEGETATION
							2.30-3.90	DARK GREY TO BLACK FINE TO COARSE SAND

ALLIED PAPER, INC./PORTAGE CREEK/KALAMAZOO RIVER SUPERFUND SITE
TECHNICAL MEMORANDUM 10
SUMMARY OF SEDIMENT CHARACTERIZATION FIELD OBSERVATIONS

TRANSECT: KPT71		Date Collected: 09/17/93		River Width (ft): 96.0		Distance to Right Edge of Water (ft): 0		
Distance From Right Bank (ft)	Water Depth (ft)	Water Velocity (fps)	Sediment Depth (ft)	Sediment Penetrated (ft)	Sediment Recovered (ft)	Sediment Type	Interval (ft)	Description
493	2.1	0.00	6.00	6.00	4.40	FINE	0-0.33	GREY TO DARK GREY FINE TO COARSE SAND AND SILT
							0.00-0.40	BROWN FINE TO COARSE SAND
							0.40-2.20	DARK GREY TO BLACK SILTY CLAY
							2.20-3.00	DARK GREY FINE SAND, TRACE SILT
							3.00-4.40	BROWN FINE SAND WITH WOOD DEBRIS
805	0.8	0.00	4.50	4.40	2.90	COARSE	0-0.33	GREY-BROWN FINE TO COARSE SAND
							0.00-1.00	GREY-BROWN FINE TO COARSE SAND
							1.00-1.70	DARK GREY SILTY CLAY, TRACE FINE SAND
							1.70-2.50	BROWN FINE SAND WITH SILT
							2.50-2.90	GREY FINE SAND
835	2.0	0.00	4.10	2.90	2.00	FINE	0-0.33	BROWN-GREY FINE TO COARSE SAND, SOME SILT
							0.00-0.40	BROWN-GREY FINE TO COARSE SAND
							0.40-1.40	DARK GREY SILTY CLAY
							1.40-2.00	BROWN-GREY SILT AND FINE SAND WITH ORGANIC MATTER

ALLIED PAPER, INC./PORTAGE CREEK/KALAMAZOO RIVER SUPERFUND SITE
TECHNICAL MEMORANDUM 10
SUMMARY OF SEDIMENT CHARACTERIZATION FIELD OBSERVATIONS

TRANSECT: KPT72		Date Collected: 09/17/93		River Width (ft): 164.0		Distance to Right Edge of Water (ft): 0		
Distance From Right Bank (ft)	Water Depth (ft)	Water Velocity (fps)	Sediment Depth (ft)	Sediment Penetrated (ft)	Sediment Recovered (ft)	Sediment Type	Interval (ft)	Description
22	2.0	0.00	3.00	3.00	1.80	FINE	0-0.33	GREY TO BROWN SILT WITH TRACE FINE SAND
							0.00-1.40	GREY TO BROWN SILT WITH TRACE FINE SAND
							1.40-1.80	GREY FINE SAND AND SILT
78	4.5	0.00	1.50	1.50	1.20	FINE	0-0.33	DARK GREY FINE SAND AND SILT
							0.00-0.30	DARK GREY FINE SAND AND SILT
							0.30-1.20	BROWN TO GREY FINE TO COARSE SAND
150	5.5	0.00	5.70	5.70	4.30	COARSE	0-0.33	GREY-BROWN FINE TO COARSE SAND
							0.00-4.30	GREY-BROWN FINE TO COARSE SAND
411	2.0	0.00	6.00	5.60	5.00	FINE	0-0.33	DARK GREY SILT AND FINE SAND
							0.00-1.60	DARK GREY SILT AND FINE SAND
							1.60-5.00	GREY FINE TO MEDIUM SAND
601	2.6	0.00	7.60	7.60	3.70	FINE	0-0.33	DARK GREY CLAYEY SILT, TRACE FINE SAND, MODERATE ORGANIC ODOR
							0.00-0.40	DARK GREY CLAYEY SILT, TRACE FINE SAND
							0.40-2.30	DARK GREY TO BROWN SILT WITH FINE SAND
							2.30-3.70	GREY TO BROWN FINE SAND
886	1.8	0.00	4.30	4.30	3.50	FINE	0-0.33	GREY FINE SAND AND SILT
							0.00-1.00	BROWN TO GREY FINE TO COARSE SAND, TRACE SILT
							1.00-1.80	DARK GREY TO BLACK FINE SAND AND SILT
							1.80-3.20	LIGHT BROWN TO GREY FINE SAND
							3.20-3.50	BROWN FINE SAND WITH SILT

ALLIED PAPER, INC./PORTAGE CREEK/KALAMAZOO RIVER SUPERFUND SITE
 TECHNICAL MEMORANDUM 10
 SUMMARY OF SEDIMENT CHARACTERIZATION FIELD OBSERVATIONS

TRANSECT: KPT72		Date Collected: 09/17/93		River Width (ft): 39.0		Distance to Right Edge of Water (ft): 0		
Distance From Right Bank (ft)	Water Depth (ft)	Water Velocity (fps)	Sediment Depth (ft)	Sediment Penetrated (ft)	Sediment Recovered (ft)	Sediment Type	Interval (ft)	Description
953	1.5	0.00	4.80	4.80	3.10	FINE	0-0.33	DARK GREY FINE TO MEDIUM SAND AND SILT WITH ORGANIC MATTER
							0.00-0.20	DARK GREY FINE TO MEDIUM SAND & SILT WITH ORGANIC MATTER
							0.20-1.20	DARK GREY FINE TO MEDIUM SAND
							1.20-1.80	DARK GREY SILTY CLAY
							1.80-2.50	BROWN FINE SAND AND SILT
							2.50-3.10	BROWN FINE SAND, TRACE OF SILT

ALLIED PAPER, INC./PORTAGE CREEK/KALAMAZOO RIVER SUPERFUND SITE
TECHNICAL MEMORANDUM 10
SUMMARY OF SEDIMENT CHARACTERIZATION FIELD OBSERVATIONS

TRANSECT: KPT73		Date Collected: 09/20/93		River Width (ft): 164.0		Distance to Right Edge of Water (ft): 0		
Distance From Right Bank (ft)	Water Depth (ft)	Water Velocity (fps)	Sediment Depth (ft)	Sediment Penetrated (ft)	Sediment Recovered (ft)	Sediment Type	Interval (ft)	Description
46	1.9	0.00	5.10	5.10	3.10	FINE	0-0.33	DARK GREY SILT, DECAYING VEGETATION
							0.00-0.50	DARK GREY SILT, DECAYING VEGETATION
							0.50-0.90	DARK BROWN SILT, TRACE VEGETATION
							0.90-1.40	BLACK CLAYEY SILT
							1.40-2.40	BROWN PEAT WITH SILT
							2.40-3.10	WOOD
113	2.2	0.00	6.30	6.30	4.40	COARSE	0-0.33	BROWN TO GREY FINE TO COARSE SAND, SHELLS
							0.00-0.80	BROWN TO GREY FINE TO COARSE SAND, SHELLS
							0.80-1.60	BROWN SILT WITH DEAD VEGETATION
							1.60-3.10	TAN TO GREY FINE SAND AND SILT
							3.10-4.40	TAN FINE TO MEDIUM SAND
470	3.0	0.00	4.20	3.70	2.50	COARSE	0-0.33	GREY-BROWN FINE TO COARSE SAND, TRACE GRAVEL
							0.00-0.70	GREY-BROWN FINE TO COARSE SAND, TRACE GRAVEL
							0.70-1.20	BROWN FINE SAND AND SILT, TRACE CLAY
							1.20-2.50	GREY FINE SAND, TRACE SILT
530	3.3	0.00	3.60	3.00	1.40	FINE	0-0.33	DARK GREY SILT, FINE SAND, DEAD VEGETATION
							0.00-0.10	DARK GREY SILT, FINE SAND, DEAD VEGETATION
							0.10-1.40	BROWN TIGHT FINE SAND AND SILT, TRACE CLAY

ALLIED PAPER, INC./PORTAGE CREEK/KALAMAZOO RIVER SUPERFUND SITE
TECHNICAL MEMORANDUM 10
SUMMARY OF SEDIMENT CHARACTERIZATION FIELD OBSERVATIONS

TRANSECT: KPT73		Date Collected: 09/20/93		River Width (ft): 179.0		Distance to Right Edge of Water (ft): 0		
Distance From Right Bank (ft)	Water Depth (ft)	Water Velocity (fps)	Sediment Depth (ft)	Sediment Penetrated (ft)	Sediment Recovered (ft)	Sediment Type	Interval (ft)	Description
604	2.5	0.00	5.40	4.80	2.40	FINE	0-0.33	DARK GREY SILTY CLAY, TRACE VEGETATION
							0.00-1.10	DARK GREY SILTY CLAY, TRACE VEGETATION
							1.10-2.00	BROWN FINE SAND WITH SILT, TRACE CLAY
							2.00-2.40	GREY FINE SAND, TRACE SILT
802	3.0	0.00	2.90	2.70	1.80	FINE	0-0.33	DARK GREY FINE SAND WITH SILTY CLAY, SHELLS
							0.00-0.10	BROWN FINE TO COARSE SAND
							0.10-0.40	BROWN FINE SAND AND SILT, TRACE CLAY
							0.40-1.80	GREY TO BROWN FINE SAND AND SILTY CLAY
1038	1.8	0.00	5.20	4.50	3.00	COARSE	0-0.33	GREY-BROWN FINE TO COARSE SAND
							0.00-0.90	GREY-BROWN FINE TO COARSE SAND
							0.90-1.30	DARK GREY CLAYEY SILT WITH FINE SAND
							1.30-1.40	GREY-BROWN FINE SAND
							1.40-2.30	DARK GREY CLAYEY SILT WITH FINE SAND
							2.30-3.00	GREY-BROWN FINE SAND WITH SILT

ALLIED PAPER, INC./PORTAGE CREEK/KALAMAZOO RIVER SUPERFUND SITE
TECHNICAL MEMORANDUM 10
SUMMARY OF SEDIMENT CHARACTERIZATION FIELD OBSERVATIONS

TRANSECT: KPT74		Date Collected: 09/21/93		River Width (ft): 132.0		Distance to Right Edge of Water (ft): 0		
Distance From Right Bank (ft)	Water Depth (ft)	Water Velocity (fps)	Sediment Depth (ft)	Sediment Penetrated (ft)	Sediment Recovered (ft)	Sediment Type	Interval (ft)	Description
42	1.4	0.80	5.00	4.80	3.50	FINE	0-0.33	DARK GREY SILT, SOME FINE SAND, VEGETATIVE MATTER
							0.00-1.40	DARK GREY SILT, SOME FINE SAND, VEGETATIVE MATTER
							1.40-3.50	BROWN TO GREY FINE SAND WITH SILT
190	1.0	0.20	5.00	4.70	2.00	FINE	0-0.33	DARK GREY SILT, SOME FINE SAND, VEGETATIVE MATTER, ORGANIC ODOR
							0.00-0.40	DARK GREY SILT, SOME FINE SAND, VEGETATIVE MATTER
							0.40-1.00	DARK GREY TO BROWN SILT, TRACE FINE SAND AND CLAY
							1.00-1.50	BROWN PEAT AND WOOD DEBRIS
							1.50-2.00	BROWN FINE SAND, TRACE SILT, GRAVEL
244	1.0	0.03	4.00	3.50	2.70	FINE	0-0.33	DARK GREY SILT, SOME FINE TO COARSE SAND, SHELLS
							0.00-0.40	DARK GREY SILT, SOME FINE TO COARSE SAND
							0.40-1.00	DARK GREY TO BROWN SILT, TRACE FINE SAND
							1.00-2.70	TAN TO LIGHT GREY FINE SAND, TRACE SILT
495	1.2	0.06	7.30	7.30	4.20	FINE	0-0.33	DARK GREY SILT, SOME FINE SAND, TRACE VEGETATION
							0.00-0.50	DARK GREY SILT, SOME FINE SAND, TRACE VEGETATION
							0.50-1.70	DARK GREY TO BLACK SILTY CLAY
							1.70-4.20	FINE SAND, TRACE SILT AND MEDIUM SAND, BROWN TO GREY

ALLIED PAPER, INC./PORTAGE CREEK/KALAMAZOO RIVER SUPERFUND SITE
 TECHNICAL MEMORANDUM 10
 SUMMARY OF SEDIMENT CHARACTERIZATION FIELD OBSERVATIONS

TRANSECT: KPT74		Date Collected: 09/21/93		River Width (ft):		40.0	Distance to Right Edge of Water (ft):		0
Distance From Right Bank (ft)	Water Depth (ft)	Water Velocity (fps)	Sediment Depth (ft)	Sediment Penetrated (ft)	Sediment Recovered (ft)	Sediment Type	Interval (ft)	Description	
615	1.1	1.88	6.40	6.20	3.10	COARSE	0-0.33	GREY TO BROWN FINE TO COARSE SAND	
							0.00-0.70	GREY TO BROWN FINE TO COARSE SAND	
							0.70-2.00	DARK GREY TO BLACK SILTY CLAY, SOME FINE SAND	
							2.00-2.20	BROWN SILT WITH WOOD MATERIAL	
							2.20-3.10	GREY FINE SAND	
907	1.8	1.48	4.50	4.50	3.20	COARSE	0-0.33	GREY-BROWN FINE TO COARSE SAND	
							0.00-1.50	GREY-BROWN FINE TO COARSE SAND	
							1.50-1.80	BLACK FINE SAND AND SILT	
							1.80-3.20	BROWN SILT AND FINE SAND WITH WOOD DEBRIS	
980	3.3	1.93	4.00	4.00	3.20	COARSE	0-0.33	GREY-BROWN FINE TO COARSE SAND AND GRAVEL	
							0.00-0.10	GRAVEL	
							0.10-1.10	GREY-BROWN FINE TO COARSE SAND	
							1.10-1.60	DARK GREY TO BLACK SILTY CLAY WITH FINE SAND	
							1.60-3.20	BROWN SILT, SOME FINE SAND, TRACE CLAY	
1075	3.0	1.09	5.00	5.00	4.10	FINE	0-0.33	BROWN TO DARK GREY FINE SAND, SOME MEDIUM SAND AND SILT	
							0.00-0.40	BROWN TO DARK GREY FINE SAND, SOME MEDIUM SAND AND SILT	
							0.40-1.20	GREY TO DARK GREY FINE SAND WITH CLAYEY SILT	
							1.20-4.10	LIGHT TO DARK GREY FINE TO COARSE SAND	

ALLIED PAPER, INC./PORTAGE CREEK/KALAMAZOO RIVER SUPERFUND SITE
TECHNICAL MEMORANDUM 10
SUMMARY OF SEDIMENT CHARACTERISATION FIELD OBSERVATIONS

TRANSECT: KPT75		Date Collected: 09/21/93		River Width (ft): 694.0		Distance to Right Edge of Water (ft): 0		
Distance From Right Bank (ft)	Water Depth (ft)	Water Velocity (fps)	Sediment Depth (ft)	Sediment Penetrated (ft)	Sediment Recovered (ft)	Sediment Type	Interval (ft)	Description
42	0.8	0.00	8.90	6.20	2.50	FINE	0-0.33	DARK GREY SILT, TRACE FINE SAND, MODERATE ORGANIC ODOR, DEAD VEGETATION
							0.00-0.70	DARK GREY SILT, TRACE FINE SAND
							0.70-2.50	BROWN PEAT
135	0.8	0.00	7.70	5.00	3.10	FINE	0-0.33	DARK GREY SILT WITH SOME FINE SAND, ORGANIC ODOR, DEAD VEGETATION
							0.00-0.70	DARK GREY SILT, SOME FINE SAND, DEAD VEGETATION
							0.70-1.80	BROWN SILT WITH VEGETATION, TRACE FINE SAND
							1.80-3.10	GREY FINE SAND, TRACE SILT
237	2.6	0.00	4.30	3.90	3.30	FINE	0-0.33	BROWN SILT, SOME FINE SAND, DEAD VEGETATION
							0.00-0.70	BROWN SILT, SOME FINE SAND, DEAD VEGETATION
							0.70-3.30	GREY TO BROWN SILT AND FINE SAND
332	1.1	0.00	8.80	8.50	3.70	FINE	0-0.33	BROWN SILT, SOME FINE SAND AND CLAY
							0.00-1.00	BROWN SILT, SOME FINE SAND AND CLAY
							1.00-1.70	BROWN SILT, TRACE FINE SAND
							1.70-2.20	BROWN PEAT
							2.20-3.70	BROWN TO GREY FINE SAND, SOME SILT, TRACE COARSE SAND
438	2.6	0.00	8.40	8.40	5.50	COARSE	0-0.33	GREY-BROWN FINE TO COARSE SAND, SHELLS
							0.00-1.70	GREY FINE TO COARSE SAND
							1.70-2.50	BROWN SILT, SOME FINE SAND, VEGETATION
							2.50-5.50	GREY FINE TO COARSE SAND

ALLIED PAPER, INC./PORTAGE CREEK/KALAMAZOO RIVER SUPERFUND SITE
 TECHNICAL MEMORANDUM 10
 SUMMARY OF SEDIMENT CHARACTERIZATION FIELD OBSERVATIONS

TRANSECT: KPT75		Date Collected: 09/21/93		River Width (ft): 694.0		Distance to Right Edge of Water (ft): 0		
Distance From Right Bank (ft)	Water Depth (ft)	Water Velocity (fps)	Sediment Depth (ft)	Sediment Penetrated (ft)	Sediment Recovered (ft)	Sediment Type	Interval (ft)	Description
529	3.0	0.00	5.80	5.00	3.00	COARSE	0-0.33	BROWN FINE TO COARSE SAND, TRACE GRAVEL
							0.00-0.10	GRAVEL, COARSE SAND
							0.10-0.60	BROWN FINE TO COARSE SAND
							0.60-1.50	DARK GREY TO BLACK SILTY CLAY
							1.50-2.00	DARK BROWN SILT WITH TRACE DEAD VEGETATION
							2.00-3.00	GREY FINE SAND
665	3.8	0.00	3.70	3.50	2.40	FINE	0-0.33	GREY TO DARK GREY SILTY CLAY, SOME FINE SAND, ROOTS, STRONG ORGANIC ODOR
							0.00-0.50	GREY TO DARK GREY SILTY CLAY, TRACE FINE SAND
							0.50-1.30	BROWN SILT WITH FINE SAND AND VEGETATION
							1.30-2.40	GREY FINE SAND, WOOD DEBRIS AT BOTTOM
783	0.8	0.00	6.90	5.80	3.00	FINE	0-0.33	BROWN FINE TO MEDIUM SAND
							0.00-1.80	BROWN FINE TO MEDIUM SAND
							1.80-2.80	DARK GREY TO BROWN FINE SAND AND SILT
							2.80-3.00	LIGHT GREY FINE SAND, TRACE SILT

ALLIED PAPER, INC./PORTAGE CREEK/KALAMAZOO RIVER SUPERFUND SITE
TECHNICAL MEMORANDUM 10
SUMMARY OF SEDIMENT CHARACTERIZATION FIELD OBSERVATIONS

TRANSECT: KPT76		Date Collected: 09/21/93		River Width (ft): 276.0		Distance to Right Edge of Water (ft): 0		
Distance From Right Bank (ft)	Water Depth (ft)	Water Velocity (fps)	Sediment Depth (ft)	Sediment Penetrated (ft)	Sediment Recovered (ft)	Sediment Type	Interval (ft)	Description
32	1.6	1.82	1.50	1.50	1.00	FINE	0-0.33	GREY CLAY AND FINE BROWN SAND
							0.00-0.10	GREY-BROWN FINE SAND
							0.10-1.00	GREY TO DARK GREY CLAY WITH FINE SAND
95	3.5	1.90	0.90	0.70	0.70	FINE	0-0.33	GREY CLAY AND FINE BROWN SAND
							0.00-0.10	GREY-BROWN FINE SAND
							0.10-0.70	GREY-BROWN CLAY AND FINE SAND
158	2.6	2.03	4.00	3.60	1.90	FINE	0-0.33	DARK BROWN PEAT WITH SOME FINE TO COARSE SAND, FIBEROUS VEGETATION
							0.00-0.20	GREY FINE SAND, SOME COARSE
							0.20-1.60	DARK BROWN PEAT AND WOOD DEBRIS
							1.60-1.90	GREY FINE SAND AND SILTY CLAY
221	3.0	1.83	3.10	3.10	2.00	FINE	0-0.33	DARK BROWN SILTY PEAT AND GREY FINE TO COARSE SAND
							0.00-0.20	GREY FINE TO COARSE SAND
							0.20-1.20	DARK BROWN SILTY PEAT
							1.20-2.00	GREY FINE SAND AND SILTY CLAY
284	2.1	1.85	4.00	3.80	1.80	FINE	0-0.33	DARK BROWN SILTY PEAT WITH SOME FINE TO COARSE SAND
							0.00-0.30	GREY-BROWN FINE TO COARSE SAND, SOME GRAVEL
							0.30-1.60	DARK BROWN SILTY PEAT
							1.60-1.80	GREY FINE SAND AND SILT

ALLIED PAPER, INC./PORTAGE CREEK/KALAMASOO RIVER SUPERFUND SITE
 TECHNICAL MEMORANDUM 10
 SUMMARY OF SEDIMENT CHARACTERIZATION FIELD OBSERVATIONS

TRANSECT: KPT76		Date Collected: 09/21/93		River Width (ft): 70.0		Distance to Right Edge of Water (ft): 0		
Distance From Right Bank (ft)	Water Depth (ft)	Water Velocity (fps)	Sediment Depth (ft)	Sediment Penetrated (ft)	Sediment Recovered (ft)	Sediment Type	Interval (ft)	Description
729	1.4	1.90	7.30	7.20	2.80	FINE	0-0.33	DARK GREY SILTY CLAY WITH FINE SAND AND A STRONG ORGANIC ODOR
							0.00-2.40	DARK GREY SILTY CLAY WITH FINE SAND & STRONG ORGANIC ODOR
							2.40-2.80	DARK BROWN FINE SAND AND SILT, SOME PEAT
776	2.4	1.95	7.60	6.60	3.40	FINE	0-0.33	BROWN FINE SAND
							0.00-1.50	BROWN TO GREY FINE SAND, TRACE MEDIUM SAND
							1.50-3.40	DARK GREY TO BLACK SILTY CLAY, TRACE FINE SAND

ALLIED PAPER, INC./PORTAGE CREEK/KALAMAZOO RIVER SUPERFUND SITE
TECHNICAL MEMORANDUM 10
SUMMARY OF SEDIMENT CHARACTERIZATION FIELD OBSERVATIONS

TRANSECT: KPT77		Date Collected: 09/22/93		River Width (ft): 40.0		Distance to Right Edge of Water (ft): 7		
Distance From Right Bank (ft)	Water Depth (ft)	Water Velocity (fps)	Sediment Depth (ft)	Sediment Penetrated (ft)	Sediment Recovered (ft)	Sediment Type	Interval (ft)	Description
22	0.9	0.00	6.60	6.60	2.90	FINE	0-0.33	DARK GREY SILT, TRACE FINE SAND, TRACE ORGANIC MATTER, ORGANIC ODOR
							0.00-1.70	DARK GREY-BROWN SILT, TRACE FINE SAND
							1.70-2.60	BROWN PEAT
							2.60-2.90	BROWN FINE SAND WITH SILT
94	0.8	0.00	8.20	8.20	3.20	FINE	0-0.33	BROWN TO GREY CLAYEY SILT, DECAYING VEGETATION
							0.00-0.10	BROWN SILT, DECAYING VEGETATION
							0.10-1.20	GREY CLAYEY SILT, SLUDGE-LIKE
							1.20-2.20	BROWN PEAT
							2.20-3.20	GREY FINE SAND
166	1.0	0.00	8.00	7.80	3.20	FINE	0-0.33	DARK BROWN TO GREY CLAYEY SILT, FIBER MATERIAL, ORGANIC ODOR
							0.00-0.10	BROWN SILT, TRACE FINE SAND, DECAYING VEGETATION
							0.10-3.20	DARK GREY TO GREY CLAYEY SILT, TRACE FINE SAND, FIBEROUS
235	2.7	0.00	7.30	6.50	3.10	FINE	0-0.33	DARK GREY CLAYEY SILT, FIBEROUS, SLUDGE-LIKE, TRACE FINE SAND
							0.00-0.10	BROWN FINE SAND
							0.10-2.50	DARK GREY CLAYEY SILT, TRACE FINE SAND
							2.50-3.10	GREY FINE SAND
299	3.1	0.00	4.90	4.90	3.00	COARSE	0-0.33	BROWN TO GREY FINE TO COARSE SAND
							0.00-0.70	BROWN TO GREY FINE TO COARSE SAND
							0.70-3.00	DARK GREY CLAYEY SILT

ALLIED PAPER, INC./PORTAGE CREEK/KALAMAZOO RIVER SUPERFUND SITE
 TECHNICAL MEMORANDUM 10
 SUMMARY OF SEDIMENT CHARACTERIZATION FIELD OBSERVATIONS

TRANSECT: KPT77		Date Collected: 09/22/93		River Width (ft): 366.0		Distance to Right Edge of Water (ft): 7		
Distance From Right Bank (ft)	Water Depth (ft)	Water Velocity (fps)	Sediment Depth (ft)	Sediment Penetrated (ft)	Sediment Recovered (ft)	Sediment Type	Interval (ft)	Description
361	3.8	0.00	4.70	4.00	2.80	COARSE	0-0.33	GREY-BROWN FINE TO COARSE SAND
							0.00-0.80	GREY-BROWN FINE TO COARSE SAND
							0.80-2.70	DARK GREY CLAYEY SILT
							2.70-2.80	DARK GREY FINE SAND
426	2.7	0.00	6.00	4.20	3.40	FINE	0-0.33	BROWN FINE SAND, TRACE MEDIUM SAND
							0.00-0.30	BROWN FINE SAND, TRACE MEDIUM SAND
							0.30-1.30	BROWN TO GREY FINE TO COARSE SAND
							1.30-2.60	DARK GREY TO BLACK CLAYEY SILT
							2.60-3.40	GREY FINE TO COARSE SAND
503	1.7	0.00	5.80	5.70	4.80	FINE	0-0.33	GREY-BROWN FINE SAND
							0.00-1.10	GREY-BROWN FINE SAND
							1.10-3.30	GREY FINE TO MEDIUM SAND
							3.30-3.80	GREY FINE SAND, SOME SILT
							3.80-4.80	BLACK TO DARK GREY FINE SAND AND SILT WITH CLAY

ALLIED PAPER, INC./PORTAGE CREEK/KALAMAZOO RIVER SUPERFUND SITE
TECHNICAL MEMORANDUM 10
SUMMARY OF SEDIMENT CHARACTERIZATION FIELD OBSERVATIONS

TRANSECT: KPT78		Date Collected: 09/22/93		River Width (ft): 249.0		Distance to Right Edge of Water (ft): 0		
Distance From Right Bank (ft)	Water Depth (ft)	Water Velocity (fps)	Sediment Depth (ft)	Sediment Penetrated (ft)	Sediment Recovered (ft)	Sediment Type	Interval (ft)	Description
23	2.8	0.00	3.70	3.80	1.70	FINE	0-0.33	GREY-BROWN FINE TO MEDIUM SAND
							0.00-0.90	GREY-BROWN FINE TO MEDIUM SAND
							0.90-1.70	GREY-BROWN FINE SAND AND SILT
73	6.4	0.00	2.30	2.30	1.10	FINE	0-0.33	BROWN TO GREY FINE TO MEDIUM SAND, TRACE COARSE SAND, SHELLS
							0.00-1.10	GREY-BROWN FINE TO COARSE SAND
114	5.3	0.00	3.20	3.10	3.00	FINE	0-0.33	BROWN TO GREY FINE TO MEDIUM SAND
							0.00-1.90	BROWN TO GREY FINE TO MEDIUM SAND
							1.90-2.70	DARK GREY FINE SAND AND SILT
							2.70-3.00	BLACK SILTY CLAY
157	2.4	0.00	5.40	5.40	4.60	FINE	0-0.33	BROWN-GREY FINE TO MEDIUM SAND
							0.00-2.40	GREY-BROWN FINE TO MEDIUM SAND
							2.40-4.30	DARK GREY TO BLACK SILTY CLAY
							4.30-4.60	DARK GREY FINE SAND AND SILTY CLAY
200	1.0	0.00	6.80	6.60	4.50	FINE	0-0.33	BROWN FINE SAND
							0.00-1.70	BROWN FINE SAND
							1.70-2.10	BROWN FINE TO MEDIUM SAND
							2.10-4.00	DARK GREY TO BLACK SILTY CLAY
							4.00-4.50	DARK GREY FINE SAND

ALLIED PAPER, INC./PORTAGE CREEK/KALAMAZOO RIVER SUPERFUND SITE
 TECHNICAL MEMORANDUM 10
 SUMMARY OF SEDIMENT CHARACTERIZATION FIELD OBSERVATIONS

TRANSECT: KPT78		Date Collected: 09/22/93		River Width (ft): 249.0		Distance to Right Edge of Water (ft): 0		
Distance From Right Bank (ft)	Water Depth (ft)	Water Velocity (fps)	Sediment Depth (ft)	Sediment Penetrated (ft)	Sediment Recovered (ft)	Sediment Type	Interval (ft)	Description
253	3.1	0.00	5.40	5.40	3.40	FINE	0-0.33	GREY TO BROWN FINE SAND
							0.00-0.70	GREY TO BROWN FINE SAND
							0.70-3.00	DARK GREY TO BLACK SILTY CLAY
							3.00-3.40	DARK GREY FINE SAND WITH SILT
547	0.6	0.00	5.70	5.70	2.90	FINE	0-0.33	DARK GREY TO BLACK SILT, SMALL ROOTS, ORGANICS, ORGANIC ODOR
							0.00-1.00	DARK GREY TO BLACK SILT, ORGANICS
							1.00-2.90	DARK GREY TO BLACK SILTY CLAY, TRACE FINE SAND

ALLIED PAPER, INC./PORTAGE CREEK/KALAMAZOO RIVER SUPERFUND SITE
 TECHNICAL MEMORANDUM 10
 SUMMARY OF SEDIMENT CHARACTERISATION FIELD OBSERVATIONS

TRANSECT: KPT79		Date Collected: 09/22/93		River Width (ft): 280.0		Distance to Right Edge of Water (ft): 0		
Distance From Right Bank (ft)	Water Depth (ft)	Water Velocity (fps)	Sediment Depth (ft)	Sediment Penetrated (ft)	Sediment Recovered (ft)	Sediment Type	Interval (ft)	Description
33	1.5	0.00	4.50	4.50	2.60	FINE	0-0.33	GREY CLAYEY SILT
							0.00-2.50	GREY CLAYEY SILT
							2.50-2.60	LIGHT BROWN FINE SAND
90	1.8	0.00	8.70	7.70	5.80	COARSE	0-0.33	BROWN-GREY FINE TO COARSE SAND, TRACE OF SHELLS
							0.00-1.20	GREY-BROWN FINE TO COARSE SAND
							1.20-1.30	GREY FINE SAND
							1.30-3.40	GREY-BROWN FINE TO MEDIUM SAND
							3.40-5.30	DARK GREY SILTY CLAY
							5.30-5.80	GREY FINE TO MEDIUM SAND
148	3.0	0.00	8.00	7.70	6.45	COARSE	0-0.33	GREY-BROWN FINE TO COARSE SAND, TRACE OF SHELLS
							0.00-1.60	GREY-BROWN FINE TO COARSE SAND
							1.60-1.80	DARK GREY TO BLACK SILTY CLAY
							1.80-2.90	GREY-BROWN FINE TO MEDIUM SAND
							2.90-3.50	DARK GREY SILT WITH FINE SAND
							3.50-4.60	GREY FINE TO MEDIUM SAND
							4.60-6.45	DARK GREY TO BLACK SILTY CLAY

ALLIED PAPER, INC./PORTAGE CREEK/KALAMAZOO RIVER SUPERFUND SITE
TECHNICAL MEMORANDUM 10
SUMMARY OF SEDIMENT CHARACTERIZATION FIELD OBSERVATIONS

TRANSECT: KPT79		Date Collected: 09/22/93		River Width (ft): 280.0		Distance to Right Edge of Water (ft): 0		
Distance From Right Bank (ft)	Water Depth (ft)	Water Velocity (fps)	Sediment Depth (ft)	Sediment Penetrated (ft)	Sediment Recovered (ft)	Sediment Type	Interval (ft)	Description
203	4.2	0.00	5.80	5.80	4.40	FINE	0-0.33	GREY-BROWN FINE TO MEDIUM SAND AND BLACK SILT WITH DECAYING VEGETATION
							0.00-0.10	GREY-BROWN FINE TO MEDIUM SAND
							0.10-0.90	DARK GREY BLACK SILT, SOME FINE SAND, DECAYING VEGETATION
							0.90-2.70	GREY TO DARK GREY FINE SAND
							2.70-4.40	DARK GREY TO BLACK SILTY CLAY
252	4.0	0.00	4.40	4.00	3.10	FINE	0-0.33	DARK GREY TO BLACK CLAY WITH SOME SILT
							0.00-1.70	DARK GREY TO BLACK CLAY WITH SOME SILT
							1.70-3.10	GREY FINE SAND AND SILT
294	2.8	0.00	7.20	7.20	4.90	FINE	0-0.33	DARK GREY TO BLACK SILTY CLAY WITH SOME FINE SAND
							0.00-1.20	DARK GREY TO BLACK SILTY CLAY WITH SOME FINE SAND
							1.20-2.00	DARK GREY TO BLACK SILTY CLAY
							2.00-4.90	DARK BROWN FINE SAND AND SILT
492	0.9	0.00	7.10	7.10	1.60	FINE	0-0.33	DARK GREY-BLACK SILTY CLAY, SOME FINE SAND & DECAYING VEGETATION, OILY SHEEN
							0.00-1.60	GREY SILTY CLAY, FINE SAND/DECAYING VEGETATION/OILY SHEEN

ALLIED PAPER, INC./PORTAGE CREEK/KALAMAZOO RIVER SUPERFUND SITE
TECHNICAL MEMORANDUM 10
SUMMARY OF SEDIMENT CHARACTERIZATION FIELD OBSERVATIONS

TRANSECT: KPT80		Date Collected: 09/22/93		River Width (ft): 168.0		Distance to Right Edge of Water (ft): 11		
Distance From Right Bank (ft)	Water Depth (ft)	Water Velocity (fps)	Sediment Depth (ft)	Sediment Penetrated (ft)	Sediment Recovered (ft)	Sediment Type	Interval (ft)	Description
19	1.9	1.00	0.30	0.30	0.00	COARSE	0-0.33	BROWN FINE SAND, SOME COARSE SAND AND WHITE CRUMBLY MATERIAL AND GRAVEL
52	2.2	1.35	0.50	0.50	0.50	COARSE	0-0.33	GREY-BROWN FINE TO COARSE SAND AND GRAVEL
							0.00-0.50	GREY-BROWN FINE TO COARSE SAND AND GRAVEL
82	2.4	0.75	0.30	0.00	0.00	COARSE	0-0.33	GREY-BROWN FINE SAND AND SILT, SOME GRAVEL AND DECAYING VEGETATION
113	7.0	4.45	0.00	0.00	0.00	COARSE	0-0.33	TOP 4" NOT COLLECTED DUE TO LACK OF SEDIMENT, BOTTOM ALL ROCK AND GRAVEL
143	3.9	3.35	0.10	0.00	0.00	COARSE	0-0.33	.1' ON TOP OF ROCK AND GRAVEL, TOP 4" NOT COLLECTED DUE TO LACK OF SEDIMENT
167	2.8	1.40	0.30	0.00	0.00	COARSE	0-0.33	DARK GREY FINE SAND, SOME GRAVEL AND DECAYING VEGETATION

ALLIED PAPER, INC./PORTAGE CREEK/KALAMAZOO RIVER SUPERFUND SITE
 TECHNICAL MEMORANDUM 10
 SUMMARY OF SEDIMENT CHARACTERIZATION FIELD OBSERVATIONS

TRANSECT: KPT81		Date Collected: 09/27/93		River Width (ft): 160.0		Distance to Right Edge of Water (ft): 8		
Distance From Right Bank (ft)	Water Depth (ft)	Water Velocity (fps)	Sediment Depth (ft)	Sediment Penetrated (ft)	Sediment Recovered (ft)	Sediment Type	Interval (ft)	Description
18	1.3	0.00	2.50	2.40	1.50	FINE	0-0.33	DARK BROWN FINE SAND AND SILT, VEGETATION
							0.00-0.80	DARK BROWN FINE SAND AND SILT, VEGETATION
							0.80-1.50	TAN TO ORANGE FINE SAND
41	3.6	0.00	1.20	1.10	0.90	COARSE	0-0.33	BROWN FINE TO COARSE SAND WITH GRAVEL, TRACE SILT
							0.00-0.90	BROWN FINE TO COARSE SAND WITH GRAVEL, TRACE SILT
64	4.1	0.00	0.30	0.30	0.30	COARSE	0-0.33	TAN FINE TO COARSE SAND WITH SILT
88	4.9	0.00	1.60	1.20	0.00	COARSE	0-0.33	BROWN FINE TO COARSE SAND, GRAVEL, ROCKS
110	5.6	0.00	0.90	0.90	0.70	COARSE	0-0.33	BROWN FINE TO COARSE SAND, TRACE GRAVEL
							0.00-0.70	FINE TO COARSE SAND, TRACE GRAVEL
132	6.2	0.00	1.00	0.00	0.00	COARSE	0-0.33	BROWN FINE TO COARSE SAND, TRACE GRAVEL AND HARD WHITE CRUMBLY MATERIAL
162	4.5	0.00	1.10	1.10	0.70	COARSE	0-0.33	DARK GREY FINE TO COARSE SAND, GRAVEL
							0.00-0.10	ROCKS
							0.10-0.70	GREY FINE TO COARSE SAND

ALLIED PAPER, INC./PORTAGE CREEK/KALAMAZOO RIVER SUPERFUND SITE
TECHNICAL MEMORANDUM 10
SUMMARY OF SEDIMENT CHARACTERIZATION FIELD OBSERVATIONS

TRANSECT: KPT82		Date Collected: 09/27/93		River Width (ft): 242.0		Distance to Right Edge of Water (ft): 20		
Distance From Right Bank (ft)	Water Depth (ft)	Water Velocity (fps)	Sediment Depth (ft)	Sediment Penetrated (ft)	Sediment Recovered (ft)	Sediment Type	Interval (ft)	Description
30	2.4	0.00	0.40	0.00	0.00	COARSE	0-0.33	BROWN FINE SAND WITH SOME GRAVEL (BETWEEN ROCK AND GRAVEL)
60	3.0	0.00	0.80	0.60	0.50	COARSE	0-0.33	BROWN AND GREY FINE TO COARSE SAND, GRAVEL AND COBBLE
							0.00-0.20	ROCKS
							0.20-0.50	GREY-BROWN FINE TO COARSE SAND AND GRAVEL
94	3.0	0.00	0.80	0.50	0.50	COARSE	0-0.33	GREY-BROWN FINE TO COARSE SAND AND GRAVEL
							0.00-0.50	BROWN FINE TO COARSE SAND
126	3.4	0.00	1.60	1.60	1.30	COARSE	0-0.33	BROWN FINE TO COARSE SAND AND GRAVEL, SOME WHITE CRUMBLY MATERIAL
							0.00-1.30	BROWN FINE TO COARSE SAND
158	4.0	0.00	2.80	2.80	1.80	COARSE	0-0.33	GREY-BROWN FINE SAND WITH SOME MEDIUM TO COARSE SAND
							0.00-0.10	ROCKS
							0.10-0.40	GREY-BROWN FINE TO COARSE SAND
							0.40-0.80	GREY FINE TO MEDIUM SAND
							0.80-1.00	LIGHT BROWN FINE SAND
							1.00-1.10	ROCK
							1.10-1.80	LIGHT BROWN FINE TO MEDIUM SAND
190	2.0	0.00	2.00	1.80	0.90	FINE	0-0.33	DARK GREY FINE SAND WITH WHITE HARD CRUMBLY MATERIAL
							0.00-0.90	DARK GREY FINE SAND
223	1.3	0.00	2.90	0.60	0.50	FINE	0-0.33	GREY TO DARK GREY FINE SAND WITH SOME DECAYING VEGETATION
							0.00-0.50	GREY TO DARK GREY FINE SAND WITH SOME DECAYING VEGETATION

ALLIED PAPER, INC./PORTAGE CREEK/KALAMAZOO RIVER SUPERFUND SITE
 TECHNICAL MEMORANDUM 10 -
 SUMMARY OF SEDIMENT CHARACTERIZATION FIELD OBSERVATIONS

TRANSECT: KPT82		Date Collected: 09/27/93		River Width (ft): 242.0		Distance to Right Edge of Water (ft): 20		
Distance								
From	Water	Water	Sediment	Sediment	Sediment	Sediment		
Right Bank	Depth	Velocity	Depth	Penetrated	Recovered	Type	Interval	Description
(ft)	(ft)	(fps)	(ft)	(ft)	(ft)		(ft)	
252	0.9	0.00	1.10	0.90	0.70	FINE	0-0.33	DARK GREY FINE SAND, SILT, AND DECAYING VEGETATION
							0.00-0.70	BROWN TO DARK BROWN FINE SAND

ALLIED PAPER, INC./PORTAGE CREEK/KALAMAZOO RIVER SUPERFUND SITE
TECHNICAL MEMORANDUM 10
SUMMARY OF SEDIMENT CHARACTERIZATION FIELD OBSERVATIONS

TRANSECT: KPT83 Date Collected: 10/04/93 River Width (ft): 218.0 Distance to Right Edge of Water (ft): 16								
Distance From Right Bank (ft)	Water Depth (ft)	Water Velocity (fps)	Sediment Depth (ft)	Sediment Penetrated (ft)	Sediment Recovered (ft)	Sediment Type	Interval (ft)	Description
24	2.4	0.00	0.60	0.30	0.00	COARSE	0-0.33	GREY-BROWN FINE SAND, SOME MEDIUM SAND AND LARGE GRAVEL
58	4.0	0.00	0.30	0.30	0.00	COARSE	0-0.33	BROWN GREY FINE TO COARSE SAND, GRAVEL, SOME WHITE HARD CRUMBLY MATERIAL
92	2.5	0.00	0.50	0.40	0.00	COARSE	0-0.33	GREY-BROWN FINE TO COARSE SAND AND GRAVEL, TRACE VEGETATION
123	3.8	0.00	0.30	0.30	0.00	COARSE	0-0.33	BROWN FINE-COARSE SAND/GRAVEL, SOME LARGE GRAVEL/WHITE HARD CRUMBLY MATERIAL
155	3.3	0.00	0.70	0.40	0.00	COARSE	0-0.33	BROWN-GREY FINE-COARSE SAND/GRAVEL, TRACE LARGE GRAVEL & WHITE HARD MATERIAL
188	1.5	0.00	0.30	0.30	0.00	COARSE	0-0.33	GREY-BROWN FINE-COARSE SAND/GRAVEL, SOME LARGE GRAVEL & WHITE HARD MATERIAL
222	1.1	0.00	0.30	0.30	0.00	COARSE	0-0.33	BROWN TO DARK GREY FINE TO COARSE SAND/GRAVEL (SOME LARGE),TRACE VEGETATION

ALLIED PAPER, INC./PORTAGE CREEK/KALAMAZOO RIVER SUPERFUND SITE
 TECHNICAL MEMORANDUM 10
 SUMMARY OF SEDIMENT CHARACTERIZATION FIELD OBSERVATIONS

TRANSECT: KPT84		Date Collected: 10/04/93		River Width (ft): 178.0		Distance to Right Edge of Water (ft): 13		
Distance From Right Bank (ft)	Water Depth (ft)	Water Velocity (fps)	Sediment Depth (ft)	Sediment Penetrated (ft)	Sediment Recovered (ft)	Sediment Type	Interval (ft)	Description
22	2.2	2.15	0.80	0.60	0.00	COARSE	0-0.33	GREY TO BROWN FINE-COARSE SAND, TRACE SILT/LARGE GRAVEL/WHITE HARD MATERIAL
57	2.8	2.85	0.30	0.30	0.00	COARSE	0-0.33	GREY-BROWN FINE TO COARSE SAND, ROCK, TRACE WHITE HARD CRUMBLY MATERIAL
92	3.4	4.40	1.60	1.00	0.00	COARSE	0-0.33	GREY-BROWN FINE TO COARSE SAND WITH GRAVEL, SOME ROCKS
126	3.1	4.50	0.60	0.40	0.00	COARSE	0-0.33	GREY-BROWN FINE TO COARSE SAND, GRAVEL, ROCK
156	3.2	4.30	0.30	0.30	0.00	COARSE	0-0.33	GREY-BROWN FINE TO COARSE SAND, GRAVEL, ROCKS
181	2.3	2.25	0.50	0.50	0.00	COARSE	0-0.33	GREY TO BROWN FINE TO COARSE SAND, ROCKS

ALLIED PAPER, INC./PORTAGE CREEK/KALAMAZOO RIVER SUPERFUND SITE
TECHNICAL MEMORANDUM 10
SUMMARY OF SEDIMENT CHARACTERIZATION FIELD OBSERVATIONS

TRANSECT: KPT85		Date Collected: 10/04/93		River Width (ft): 153.0		Distance to Right Edge of Water (ft): 13		
Distance From Right Bank (ft)	Water Depth (ft)	Water Velocity (fps)	Sediment Depth (ft)	Sediment Penetrated (ft)	Sediment Recovered (ft)	Sediment Type	Interval (ft)	Description
22	2.6	0.00	6.10	3.40	2.70	FINE	0-0.33	DARK BROWN SILT, TRACE FINE SAND, DEAD VEGETATION
							0.00-0.40	DARK BROWN SILT, TRACE FINE SAND, DEAD VEGETATION
							0.40-1.00	DARK BROWN FINE SAND AND SILT WITH DEAD VEGETATION
							1.00-2.70	LIGHT BROWN FINE SAND
50	5.4	0.00	2.60	0.00	0.00	COARSE	0-0.33	BROWN FINE TO COARSE SAND AND GRAVEL WITH ROUNDED ROCKS
79	5.8	0.00	0.40	0.40	0.00	COARSE	0-0.33	BROWN FINE TO COARSE SAND, MOSTLY ROUNDED ROCKS
106	6.6	0.00	0.40	0.40	0.00	COARSE	0-0.33	BROWN FINE SAND, SOME MEDIUM TO COARSE SAND
135	6.6	0.00	0.50	0.40	0.00	COARSE	0-0.33	GREY-BROWN FINE TO COARSE SAND AND SILT, SOME GRAVEL, DECAYING VEGETATION
157	3.5	0.00	3.60	3.60	3.00	FINE	0-0.33	DARK BROWN SILT, TRACE FINE SAND
							0.00-0.50	DARK BROWN SILT, TRACE FINE SAND
							0.50-3.00	LIGHT BROWN FINE SAND

ALLIED PAPER, INC./PORTAGE CREEK/KALAMAZOO RIVER SUPERFUND SITE
TECHNICAL MEMORANDUM 10
SUMMARY OF SEDIMENT CHARACTERIZATION FIELD OBSERVATIONS

TRANSECT: KPT86		Date Collected: 10/05/93		River Width (ft): 169.0		Distance to Right Edge of Water (ft): 8		
Distance From Right Bank (ft)	Water Depth (ft)	Water Velocity (fps)	Sediment Depth (ft)	Sediment Penetrated (ft)	Sediment Recovered (ft)	Sediment Type	Interval (ft)	Description
16	1.7	0.00	0.60	0.60	0.60	FINE	0-0.33	GREY-BROWN FINE SAND AND SILT, TRACE MEDIUM SAND
							0.00-0.40	GREY-BROWN FINE SAND AND SILT, TRACE MEDIUM SAND
							0.40-0.60	GREY-BROWN FINE TO MEDIUM SAND, TRACE SILT
44	3.4	0.00	2.00	0.00	0.00	COARSE	0-0.33	BROWN FINE TO MEDIUM SAND WITH ROUNDED ROCKS/GRAVEL
74	4.5	0.00	0.40	0.40	0.00	COARSE	0-0.33	BROWN FINE TO COARSE SAND, GRAVEL, ROCKS
103	4.4	0.00	0.90	0.80	0.80	COARSE	0-0.33	BROWN FINE TO COARSE SAND, GRAVEL, ROCKS
							0.00-0.80	BROWN FINE TO COARSE SAND, GRAVEL, ROCKS
132	6.9	0.00	1.10	1.10	1.10	COARSE	0-0.33	GREY-BROWN FINE TO COARSE SAND, GRAVEL, TRACE WHITE HARD CRUMBLY MATERIAL
							0.00-1.10	GREY-BROWN FINE TO COARSE SAND, GRAVEL, ROCKS
167	4.0	0.00	1.20	0.00	0.00	FINE	0-0.33	DARK GREY SILT AND FINE SAND

ALLIED PAPER, INC./PORTAGE CREEK/KALAMAZOO RIVER SUPERFUND SITE
 TECHNICAL MEMORANDUM 10
 SUMMARY OF SEDIMENT CHARACTERIZATION FIELD OBSERVATIONS

TRANSECT: KPT87		Date Collected: 10/05/93		River Width (ft): 187.0		Distance to Right Edge of Water (ft): 12		
Distance From Right Bank (ft)	Water Depth (ft)	Water Velocity (fps)	Sediment Depth (ft)	Sediment Penetrated (ft)	Sediment Recovered (ft)	Sediment Type	Interval (ft)	Description
19	2.1	0.00	4.70	3.70	2.50	FINE	0-0.33	DARK BROWN FINE SAND AND SILT
							0.00-0.60	DARK BROWN FINE SAND AND SILT
							0.60-1.60	DARK BROWN SILT, TRACE FINE SAND
							1.60-2.50	GREY TO BROWN FINE SAND, TRACE SILT
55	4.3	0.00	0.40	0.00	0.00	COARSE	0-0.33	NO SAMPLE OBTAINED - ROCK BOTTOM
88	4.2	0.00	0.00	0.00	0.00	COARSE	0-0.33	NO SAMPLE OBTAINED - ROCK BOTTOM
123	3.5	0.00	0.00	0.00	0.00	COARSE	0-0.33	NO SAMPLE OBTAINED - ROCK BOTTOM
159	3.5	0.00	1.50	0.00	0.00	COARSE	0-0.33	BROWN FINE TO COARSE SAND, GRAVEL
188	2.7	0.00	1.00	0.70	0.70	FINE	0-0.33	BROWN TO DARK GREY FINE SAND & SILT, TRACE GREY CLAY CHUNKS, ORGANIC MATTER
							0.00-0.40	BROWN TO DARK GREY FINE SAND & SILT, GREY CHUNKS OF CLAY
							0.40-0.70	DARK BROWN SILT WITH FINE SAND

ALLIED PAPER, INC./PORTAGE CREEK/KALAMAZOO RIVER SUPERFUND SITE
 TECHNICAL MEMORANDUM 10
 SUMMARY OF SEDIMENT CHARACTERIZATION FIELD OBSERVATIONS

TRANSECT: KPT88		Date Collected: 10/05/93		River Width (ft): 211.0		Distance to Right Edge of Water (ft): 9		
Distance From Right Bank (ft)	Water Depth (ft)	Water Velocity (fps)	Sediment Depth (ft)	Sediment Penetrated (ft)	Sediment Recovered (ft)	Sediment Type	Interval (ft)	Description
17	2.3	1.25	3.70	3.50	2.40	COARSE	0-0.33	BROWN FINE TO COARSE SAND
							0.00-1.00	BROWN FINE TO COARSE SAND
							1.00-2.40	BROWN FINE TO MEDIUM SAND, TRACE SILT
48	2.7	2.00	3.00	2.90	2.00	COARSE	0-0.33	BROWN FINE TO COARSE SAND
							0.00-0.90	BROWN FINE TO COARSE SAND
							0.90-2.00	DARK GREY FINE TO COARSE SAND
79	3.3	1.60	2.30	2.30	1.50	COARSE	0-0.33	BROWN FINE TO COARSE SAND
							0.00-1.50	BROWN FINE TO COARSE SAND
111	4.1	2.30	1.90	1.70	1.60	COARSE	0-0.33	BROWN FINE TO COARSE SAND
							0.00-1.60	BROWN FINE TO COARSE SAND
142	5.2	2.10	0.40	0.30	0.00	FINE	0-0.33	BROWN FINE SAND
174	5.8	1.55	0.40	0.40	0.00	COARSE	0-0.33	BROWN FINE SAND, SOME MEDIUM/COARSE SAND, GRAVEL, ROCK, WHITE HARD MATERIAL
206	2.7	0.15	3.30	2.90	1.30	FINE	0-0.33	BROWN FINE SAND
							0.00-0.40	BROWN FINE SAND
							0.40-1.30	DARK BROWN SILT, TRACE SILT

ALLIED PAPER, INC./PORTAGE CREEK/KALAMAZOO RIVER SUPERFUND SITE
TECHNICAL MEMORANDUM 10
SUMMARY OF SEDIMENT CHARACTERIZATION FIELD OBSERVATIONS

TRANSECT: KPT89		Date Collected: 10/05/93		River Width (ft): 145.0		Distance to Right Edge of Water (ft): 7		
Distance From Right Bank (ft)	Water Depth (ft)	Water Velocity (fps)	Sediment Depth (ft)	Sediment Penetrated (ft)	Sediment Recovered (ft)	Sediment Type	Interval (ft)	Description
16	3.9	0.00	2.10	1.90	1.00	FINE	0-0.33	DARK GREY TO BLACK FINE SAND & SILT, SOME GRAVEL/WHITE HARD CRUMBLY MATERIAL
							0.00-1.00	GREY TO BLACK FINE SAND/SILT, GRAVEL, WHITE HARD MATERIAL
42	7.3	0.00	1.50	1.50	0.80	FINE	0-0.33	BROWN FINE TO MEDIUM SAND
							0.00-0.80	BROWN FINE TO MEDIUM SAND
69	6.4	0.00	2.80	2.70	2.70	COARSE	0-0.33	BROWN FINE TO MEDIUM SAND WITH SOME COARSE SAND
							0.00-1.70	BROWN FINE TO COARSE SAND
							1.70-2.70	GREY-BROWN FINE TO MEDIUM SAND
96	3.8	0.00	4.30	4.30	3.25	COARSE	0-0.33	BROWN FINE TO MEDIUM SAND, SOME COARSE SAND
							0.00-1.70	BROWN TO GREY FINE TO COARSE SAND
							1.70-3.25	GREY FINE TO MEDIUM SAND
122	3.1	0.00	5.40	5.20	4.60	COARSE	0-0.33	BROWN FINE TO COARSE SAND AND GRAVEL
							0.00-2.60	GREY TO BROWN FINE TO COARSE SAND
							2.60-4.00	GREY TO BROWN FINE TO MEDIUM SAND
							4.00-4.60	BLACK CLAYEY SILT
142	3.5	0.00	4.80	4.40	3.40	COARSE	0-0.33	BROWN MEDIUM TO COARSE SAND
							0.00-2.10	BROWN FINE TO COARSE SAND
							2.10-3.40	BLACK CLAYEY SILT

ALLIED PAPER, INC./PORTAGE CREEK/KALAMAZOO RIVER SUPERFUND SITE
TECHNICAL MEMORANDUM 10
SUMMARY OF SEDIMENT CHARACTERIZATION FIELD OBSERVATIONS

TRANSECT: KPT90		Date Collected: 10/05/93		River Width (ft): 213.0		Distance to Right Edge of Water (ft): 10		
Distance From Right Bank (ft)	Water Depth (ft)	Water Velocity (fps)	Sediment Depth (ft)	Sediment Penetrated (ft)	Sediment Recovered (ft)	Sediment Type	Interval (ft)	Description
20	7.2	0.00	2.30	2.30	1.60	FINE	0-0.33	GREY-BROWN FINE SAND
							0.00-1.60	GREY TO LIGHT BROWN FINE SAND
51	5.3	0.00	3.70	3.60	3.60	COARSE	0-0.33	GREY-BROWN FINE TO COARSE SAND
							0.00-0.90	GREY-BROWN FINE TO COARSE SAND
							0.90-3.60	GREY-BROWN FINE TO MEDIUM SAND
84	4.5	0.00	3.80	3.80	3.40	COARSE	0-0.33	GREY-BROWN FINE TO COARSE SAND
							0.00-0.80	GREY-BROWN FINE TO COARSE SAND
							0.80-3.40	GREY-BROWN FINE TO MEDIUM SAND
116	4.6	0.00	4.10	3.90	3.70	FINE	0-0.33	BROWN FINE TO MEDIUM SAND
							0.00-0.90	BROWN FINE TO MEDIUM SAND
							0.90-3.70	GREY TO LIGHT GREY FINE SAND, SOME WOOD
146	3.3	0.00	5.40	4.90	3.50	COARSE	0-0.33	BROWN FINE TO COARSE SAND
							0.00-1.10	BROWN FINE TO COARSE SAND
							1.10-2.00	GREY FINE TO MEDIUM SAND
							2.00-3.50	GREY FINE SAND
178	3.4	0.00	4.70	4.10	3.40	COARSE	0-0.33	BROWN FINE TO COARSE SAND
							0.00-1.20	BROWN FINE TO COARSE SAND
							1.20-1.80	DARK GREY FINE SAND WITH SOME COARSE SAND
							1.80-3.40	DARK BROWN FINE SAND AND SILT

ALLIED PAPER, INC./PORTAGE CREEK/KALAMAZOO RIVER SUPERFUND SITE
 TECHNICAL MEMORANDUM 10
 SUMMARY OF SEDIMENT CHARACTERIZATION FIELD OBSERVATIONS

TRANSECT: KPT90		Date Collected: 10/05/93		River Width (ft): 213.0		Distance to Right Edge of Water (ft): 10		
Distance From Right Bank (ft)	Water Depth (ft)	Water Velocity (fps)	Sediment Depth (ft)	Sediment Penetrated (ft)	Sediment Recovered (ft)	Sediment Type	Interval (ft)	Description
213	2.3	0.00	2.80	2.80	1.90	FINE	0-0.33	DARK GREY TO BROWN FINE SAND
							0.00-0.50	DARK GREY TO BROWN FINE SAND
							0.50-1.90	DARK GREY SILT WITH FINE SAND

ALLIED PAPER, INC./PORTAGE CREEK/KALAMAZOO RIVER SUPERFUND SITE
TECHNICAL MEMORANDUM 10
SUMMARY OF SEDIMENT CHARACTERIZATION FIELD OBSERVATIONS

TRANSECT: KPT91		Date Collected: 10/06/93		River Width (ft): 181.0		Distance to Right Edge of Water (ft): 11		
Distance From Right Bank (ft)	Water Depth (ft)	Water Velocity (fps)	Sediment Depth (ft)	Sediment Penetrated (ft)	Sediment Recovered (ft)	Sediment Type	Interval (ft)	Description
20	4.1	0.00	2.60	2.60	2.00	FINE	0-0.33	BROWN TO DARK GREY FINE SAND AND SILT
							0.00-0.20	BROWN TO DARK GREY FINE SAND
							0.20-0.50	DARK BROWN SILT AND FINE SAND
							0.50-2.00	BROWN FINE SAND
53	5.5	0.00	9.00	9.00	5.50	COARSE	0-0.33	BROWN MEDIUM TO COARSE SAND, TRACE FINE SAND
							0.00-2.10	BROWN MEDIUM TO COARSE SAND, TRACE FINE SAND
							2.10-5.50	DARK GREY SILTY CLAY
86	4.9	0.00	7.00	6.10	4.50	COARSE	0-0.33	BROWN FINE TO COARSE SAND
							0.00-1.00	BROWN MEDIUM TO COARSE SAND, TRACE FINE SAND
							1.00-2.40	BROWN TO GREY FINE TO MEDIUM SAND
							2.40-4.30	DARK GREY SILTY CLAY
							4.30-4.50	DARK BROWN WOOD MATTER
119	4.2	0.00	6.30	6.30	5.20	FINE	0-0.33	BROWN FINE TO MEDIUM SAND, TRACE COARSE SAND
							0.00-1.80	BROWN FINE TO MEDIUM SAND, TRACE COARSE
							1.80-4.00	BROWN FINE SAND, TRACE MEDIUM SAND
							4.00-5.20	DARK GREY CLAYEY SILT, TRACE FINE SAND
153	4.3	0.00	6.40	6.40	4.70	FINE	0-0.33	BROWN FINE TO MEDIUM SAND, TRACE COARSE SAND
							0.00-1.50	BROWN FINE TO MEDIUM SAND
							1.50-3.10	GREY FINE SAND
							3.10-4.70	DARK GREY CLAYEY SILT

ALLIED PAPER, INC./PORTAGE CREEK/KALAMAZOO RIVER SUPERFUND SITE
 TECHNICAL MEMORANDUM 10
 SUMMARY OF SEDIMENT CHARACTERIZATION FIELD OBSERVATIONS

TRANSECT: KPT91		Date Collected: 10/06/93		River Width (ft): 181.0		Distance to Right Edge of Water (ft): 11		
Distance								
From	Water	Water	Sediment	Sediment	Sediment	Sediment		
Right Bank	Depth	Velocity	Depth	Penetrated	Recovered	Type	Interval	Description
(ft)	(ft)	(fps)	(ft)	(ft)	(ft)		(ft)	
184	4.7	0.00	3.40	3.40	2.40	FINE	0-0.33	BROWN FINE SAND, TRACE MEDIUM SAND AND SILT
							0.00-2.40	BROWN FINE SAND, TRACE MEDIUM SAND AND SILT

ALLIED PAPER, INC./PORTAGE CREEK/KALAMAZOO RIVER SUPERFUND SITE
TECHNICAL MEMORANDUM 10
SUMMARY OF SEDIMENT CHARACTERIZATION FIELD OBSERVATIONS

TRANSECT: KPT92		Date Collected: 10/06/93		River Width (ft): 251.0		Distance to Right Edge of Water (ft): 24		
Distance From Right Bank (ft)	Water Depth (ft)	Water Velocity (fps)	Sediment Depth (ft)	Sediment Penetrated (ft)	Sediment Recovered (ft)	Sediment Type	Interval (ft)	Description
34	2.3	0.75	5.10	5.10	3.10	FINE	0-0.33	BROWN FINE SAND AND DARK GREY SILT
							0.00-0.20	BROWN FINE SAND
							0.20-1.50	DARK GREY SILT
							1.50-3.10	BROWN TO DARK GREY FINE SAND AND SILT
66	2.2	1.05	5.90	5.90	3.00	FINE	0-0.33	BROWN FINE TO MEDIUM SAND
							0.00-0.70	BROWN FINE TO MEDIUM SAND
							0.70-2.20	DARK GREY CLAYEY SILT
							2.20-2.90	DARK BROWN SILT, SOME FINE SAND
							2.90-3.00	GREY FINE SAND
96	2.0	1.45	7.70	6.00	4.60	COARSE	0-0.33	BROWN FINE TO COARSE SAND
							0.00-1.30	BROWN FINE TO COARSE SAND
							1.30-2.60	GREY FINE SAND
							2.60-4.60	DARK GREY CLAYEY SILT
131	2.1	1.60	7.90	7.40	5.70	COARSE	0-0.33	BROWN FINE TO COARSE SAND
							0.00-2.60	BROWN FINE TO COARSE SAND
							2.60-5.70	DARK GREY CLAYEY SILT
162	3.0	1.80	6.70	6.40	4.20	COARSE	0-0.33	BROWN FINE TO MEDIUM SAND WITH SOME COARSE SAND
							0.00-4.20	BROWN FINE TO COARSE SAND
196	4.0	1.90	6.10	5.70	5.10	COARSE	0-0.33	BROWN FINE TO COARSE SAND
							0.00-5.10	BROWN FINE TO COARSE SAND

ALLIED PAPER, INC./PORTAGE CREEK/KALAMAZOO RIVER SUPERFUND SITE
 TECHNICAL MEMORANDUM 10
 SUMMARY OF SEDIMENT CHARACTERIZATION FIELD OBSERVATIONS

TRANSECT: KPT92		Date Collected: 10/06/93		River Width (ft): 251.0		Distance to Right Edge of Water (ft): 24		
Distance From Right Bank (ft)	Water Depth (ft)	Water Velocity (fps)	Sediment Depth (ft)	Sediment Penetrated (ft)	Sediment Recovered (ft)	Sediment Type	Interval (ft)	Description
229	6.2	1.70	6.10	6.10	4.70	FINE	0-0.33	BROWN FINE TO MEDIUM SAND
							0.00-2.30	BROWN FINE TO MEDIUM SAND
							2.30-4.70	DARK GREY TO BLACK CLAYEY SILT
267	2.5	0.80	9.00	9.00	3.90	FINE	0-0.33	DARK GREY TO BLACK CLAYEY SILT
							0.00-0.10	BROWN FINE SAND
							0.10-3.90	DARK GREY CLAYEY SILT

ALLIED PAPER, INC./PORTAGE CREEK/KALAMAZOO RIVER SUPERFUND SITE
TECHNICAL MEMORANDUM 10
SUMMARY OF SEDIMENT CHARACTERIZATION FIELD OBSERVATIONS

TRANSECT: KPT93		Date Collected: 10/06/93		River Width (ft): 291.0		Distance to Right Edge of Water (ft): 16		
Distance From Right Bank (ft)	Water Depth (ft)	Water Velocity (fps)	Sediment Depth (ft)	Sediment Penetrated (ft)	Sediment Recovered (ft)	Sediment Type	Interval (ft)	Description
25	1.2	0.00	11.00	11.00	4.20	FINE	0-0.33	GREY CLAY
							0.00-0.90	LIGHT GREY CLAY
							0.90-2.60	GREY CLAY
							2.60-4.20	DARK GREY CLAY
62	5.5	0.00	10.20	10.20	4.00	FINE	0-0.33	DARK GREY TO BLACK CLAYEY SILT AND BROWN FINE TO COARSE SAND
							0.00-0.20	BOWN FINE TO COARSE SAND
							0.20-0.90	DARK GREY TO BLACK CLAYEY SILT WITH FINE SAND
							0.90-4.00	DARK GREY TO BLACK CLAYEY SILT
107	5.0	0.00	8.00	8.00	5.50	FINE	0-0.33	BROWN FINE TO MEDIUM SAND
							0.00-1.10	BROWN FINE TO MEDIUM SAND
							1.10-2.60	GREY-BROWN FINE SAND WITH SOME MEDIUM SAND
							2.60-5.50	DARK GREY TO BLACK CLAYEY SILT
147	3.5	0.00	6.90	6.90	5.40	FINE	0-0.33	BROWN FINE SAND WITH SOME MEDIUM SAND
							0.00-3.30	GREY-BROWN FINE TO MEDIUM SAND, SOME COARSE SAND
							3.30-5.40	DARK GREY TO BLACK CLAYEY SILT
186	2.5	0.00	6.70	6.70	4.80	FINE	0-0.33	BROWN-GREY FINE TO MEDIUM SAND
							0.00-0.80	BROWN-GREY FINE TO MEDIUM SAND, SOME COARSE SAND
							0.80-2.50	GREY FINE TO MEDIUM SAND
							2.50-3.60	GREY FINE TO COARSE SAND
							3.60-4.80	DARK BROWN FINE SAND AND SILT

ALLIED PAPER, INC./PORTAGE CREEK/KALAMAZOO RIVER SUPERFUND SITE
TECHNICAL MEMORANDUM 10
SUMMARY OF SEDIMENT CHARACTERIZATION FIELD OBSERVATIONS

TRANSECT: KPT93		Date Collected: 10/06/93		River Width (ft): 291.0		Distance to Right Edge of Water (ft): 16		
Distance From Right Bank (ft)	Water Depth (ft)	Water Velocity (fps)	Sediment Depth (ft)	Sediment Penetrated (ft)	Sediment Recovered (ft)	Sediment Type	Interval (ft)	Description
224	0.9	0.00	7.00	7.00	6.90	COARSE	0-0.33	GREY-BROWN FINE TO COARSE SAND
							0.00-0.70	GREY-BROWN FINE TO COARSE SAND
							0.70-3.50	GREY FINE TO MEDIUM SAND
							3.50-5.10	GREY CLAYEY SILT
							5.10-6.90	LIGHT BROWN TO BROWN CLAYEY SILT
261	2.4	0.00	7.80	7.80	3.80	FINE	0-0.33	BROWN FINE TO MEDIUM SAND, SOME COARSE
							0.00-1.10	BROWN FINE TO MEDIUM SAND, SOME COARSE SAND
							1.10-1.60	GREY FINE TO MEDIUM SAND
							1.60-1.80	WOOD
							1.80-3.80	LIGHT GREY TO BROWN FINE SAND AND SILT
296	1.2	0.00	5.30	5.10	1.80	FINE	0-0.33	DARK GREY TO BLACK CLAYEY SILT
							0.00-0.40	DARK GREY TO BLACK CLAYEY SILT
							0.40-1.10	DARK GREY SILTY CLAY
							1.10-1.80	PEAT AND WOOD

ALLIED PAPER, INC./PORTAGE CREEK/KALAMAZOO RIVER SUPERFUND SITE
TECHNICAL MEMORANDUM 10
SUMMARY OF SEDIMENT CHARACTERIZATION FIELD OBSERVATIONS

TRANSECT: KPT94		Date Collected: 10/06/93		River Width (ft): 231.0		Distance to Right Edge of Water (ft): 10		
Distance From Right Bank (ft)	Water Depth (ft)	Water Velocity (fps)	Sediment Depth (ft)	Sediment Penetrated (ft)	Sediment Recovered (ft)	Sediment Type	Interval (ft)	Description
12	4.7	0.00	3.30	3.30	2.50	FINE	0-0.33	GREY-BROWN FINE SAND AND SILT
							0.00-0.30	GREY-BROWN FINE SAND AND SILT
							0.30-2.50	GREY FINE SAND, TRACE OF SILT
39	4.9	0.00	4.20	4.00	3.20	COARSE	0-0.33	BROWN FINE TO COARSE SAND
							0.00-1.00	BROWN FINE TO COARSE SAND
							1.00-2.70	GREY TO LIGHT GREY FINE SAND AND SILT
							2.70-3.20	BROWN FINE SAND WITH SILT
69	5.2	0.00	7.80	7.30	4.60	FINE	0-0.33	BROWN FINE SAND, TRACE OF MEDIUM SAND
							0.00-1.70	BROWN FINE SAND, TRACE OF MEDIUM SAND
							1.70-3.40	DARK GREY TO BLACK FINE SAND AND SILT
							3.40-3.70	BROWN FINE SAND AND SILT
							3.70-4.60	BROWN CLAYEY SILT
100	5.5	0.00	7.80	7.80	5.20	FINE	0-0.33	BROWN-GREY FINE SAND
							0.00-1.00	BROWN-GREY FINE SAND
							1.00-2.30	GREY FINE TO MEDIUM SAND
							2.30-5.20	DARK GREY CLAYEY SILT
129	5.4	0.00	8.20	8.20	5.60	FINE	0-0.33	GREY FINE TO MEDIUM SAND, TRACE OF COARSE SAND
							0.00-2.20	GREY FINE TO MEDIUM SAND, TRACE OF COARSE SAND
							2.20-5.60	DARK GREY TO BLACK CLAYEY SILT

ALLIED PAPER, INC./PORTAGE CREEK/KALAMAZOO RIVER SUPERFUND SITE
 TECHNICAL MEMORANDUM 10
 SUMMARY OF SEDIMENT CHARACTERIZATION FIELD OBSERVATIONS

TRANSECT: KPT94		Date Collected: 10/06/93		River Width (ft): 231.0		Distance to Right Edge of Water (ft): 10		
Distance From Right Bank (ft)	Water Depth (ft)	Water Velocity (fps)	Sediment Depth (ft)	Sediment Penetrated (ft)	Sediment Recovered (ft)	Sediment Type	Interval (ft)	Description
160	6.0	0.00	9.00	8.80	4.90	FINE	0-0.33	GREY TO BROWN FINE SAND
							0.00-0.80	GREY TO BROWN FINE SAND
							0.80-4.90	DARK GREY TO BLACK CLAYEY SILT
190	6.8	0.00	4.90	4.90	2.40	FINE	0-0.33	BROWN FINE SAND AND SILT
							0.00-0.40	BROWN FINE SAND AND SILT
							0.40-2.40	DARK GREY TO BLACK CLAYEY SILT
223	1.7	0.00	6.70	6.70	4.20	FINE	0-0.33	BROWN FINE TO MEDIUM SAND
							0.00-4.20	BROWN FINE TO MEDIUM SAND

ALLIED PAPER, INC./PORTAGE CREEK/KALAMAZOO RIVER SUPERFUND SITE
TECHNICAL MEMORANDUM 10
SUMMARY OF SEDIMENT CHARACTERIZATION FIELD OBSERVATIONS

TRANSECT: KPT95		Date Collected: 10/07/93		River Width (ft): 16.0		Distance to Right Edge of Water (ft): 0		
Distance From Right Bank (ft)	Water Depth (ft)	Water Velocity (fps)	Sediment Depth (ft)	Sediment Penetrated (ft)	Sediment Recovered (ft)	Sediment Type	Interval (ft)	Description
9	0.3	0.00	0.70	0.70	0.60	FINE	0-0.33	BROWN CLAYEY SILT, MILD ORGANIC ODOR
							0.00-0.60	BROWN CLAYEY SILT
241	2.0	0.00	0.80	0.60	0.60	COARSE	0-0.33	GREY TO BROWN FINE SAND, SILT, WHITE HARD CRUMBLY MATERIAL, ROCKS
							0.00-0.60	BROWN-GREY FINE TO MEDIUM SAND AND SILT
263	3.8	0.00	0.90	0.70	0.00	COARSE	0-0.33	GREY-BROWN FINE TO COARSE SAND, GRAVEL, ROCKS
283	5.0	0.00	1.20	0.80	0.00	COARSE	0-0.33	GREY-BROWN FINE SAND, TRACE COARSE SAND/GRAVEL, WHITE HARD CRUMBLY MATERIAL
302	6.3	0.00	0.30	0.20	0.00	COARSE	0-0.33	NO SAMPLE RECOVERED
325	5.7	0.00	4.50	2.00	1.20	COARSE	0-0.33	GREY-BROWN FINE TO COARSE SAND AND GRAVEL, TRACE WHITE HARD CRUMBLY MATERIAL
							0.00-1.20	GREY-BROWN FINE-COARSE SAND/GRAVEL, WHITE HARD MATERIAL
359	1.0	0.00	5.60	3.00	2.20	FINE	0-0.33	DARK GREY FINE SAND AND SILT WITH ORGANIC MATTER
							0.00-1.40	DARK GREY FINE SAND AND SILT
							1.40-2.20	BROWN FINE TO COARSE SAND, GRAVEL, ROCKS

ALLIED PAPER, INC./PORTAGE CREEK/KALAMAZOO RIVER SUPERFUND SITE
 TECHNICAL MEMORANDUM 10
 SUMMARY OF SEDIMENT CHARACTERIZATION FIELD OBSERVATIONS

TRANSECT: KPT96		Date Collected: 10/07/93		River Width (ft): 145.0		Distance to Right Edge of Water (ft): 12		
Distance From Right Bank (ft)	Water Depth (ft)	Water Velocity (fps)	Sediment Depth (ft)	Sediment Penetrated (ft)	Sediment Recovered (ft)	Sediment Type	Interval (ft)	Description
21	4.2	2.75	0.80	0.60	0.55	FINE	0-0.33	TIGHT GREY CLAY WITH FINE SAND
							0.00-0.55	TIGHT GREY CLAY WITH FINE SAND
42	5.4	3.50	0.60	0.60	0.60	FINE	0-0.33	TIGHT GREY CLAY, FINE SAND, TRACE MEDIUM SAND AND GRAVEL
							0.00-0.10	BROWN FINE TO MEDIUM SAND, GRAVEL
							0.10-0.30	BROWN FINE SAND AND GREY CLAY
							0.30-0.60	TIGHT GREY CLAY, SOME FINE SAND
63	5.0	3.90	0.70	0.70	0.65	FINE	0-0.33	TIGHT GREY CLAY, FINE TO COARSE SAND
							0.00-0.10	BROWN FINE TO COARSE SAND
							0.10-0.65	GREY CLAY WITH FINE SAND
82	3.8	3.70	0.60	0.00	0.00	COARSE	0-0.33	BROWN FINE TO COARSE SAND AND GRAVEL WITH WHITE HARD CRUMBLY MATERIAL
106	3.1	3.30	0.30	0.00	0.00	COARSE	0-0.33	NO SAMPLE COLLECTED
146	0.5	0.80	0.40	0.00	0.00	COARSE	0-0.33	GREY-BROWN FINE SAND, SOME GRAVEL, ROCKS

ALLIED PAPER, INC./PORTAGE CREEK/KALAMAZOO RIVER SUPERFUND SITE
TECHNICAL MEMORANDUM 10
SUMMARY OF SEDIMENT CHARACTERIZATION FIELD OBSERVATIONS

TRANSECT: KPT97		Date Collected: 10/07/93		River Width (ft): 199.0		Distance to Right Edge of Water (ft): 10		
Distance From Right Bank (ft)	Water Depth (ft)	Water Velocity (fps)	Sediment Depth (ft)	Sediment Penetrated (ft)	Sediment Recovered (ft)	Sediment Type	Interval (ft)	Description
20	2.0	0.00	1.80	1.60	1.00	COARSE	0-0.33	BROWN FINE SAND, GREY CLAY, GRAVEL, ROCKS
							0.00-0.10	BROWN FINE SAND
							0.10-1.00	GREY CLAY WITH FINE SAND
53	2.9	0.00	0.80	0.40	0.00	COARSE	0-0.33	BROWN FINE TO COARSE SAND, GRAVEL, ROCK
88	2.3	0.00	1.10	1.10	0.70	COARSE	0-0.33	BROWN FINE TO COARSE SAND, GRAVEL, ROCK
							0.00-0.10	GRAVEL, ROCKS
							0.10-0.70	BROWN FINE TO COARSE SAND
121	3.3	0.00	1.20	1.20	0.70	COARSE	0-0.33	BROWN FINE SAND/TRACE MEDIUM-COARSE, SOME SILT & WHITE HARD CRUMBLY MATERIAL
							0.00-0.70	BROWN FINE SAND, TRACE MEDIUM TO COARSE SAND
155	3.7	0.00	0.70	0.40	0.00	COARSE	0-0.33	BROWN FINE SAND, SOME MEDIUM SAND AND WHITE HARD CRUMBLY MATERIAL
198	1.7	0.00	2.50	1.10	0.85	COARSE	0-0.33	GREY FINE SAND, SOME SILT AND FINE TO COARSE SAND WITH GRAVEL
							0.00-0.20	BROWN FINE TO COARSE SAND
							0.20-0.85	GREY FINE SAND AND SILT

ALLIED PAPER, INC./PORTAGE CREEK/KALAMASOO RIVER SUPERFUND SITE
 TECHNICAL MEMORANDUM 10
 SUMMARY OF SEDIMENT CHARACTERIZATION FIELD OBSERVATIONS

TRANSECT: KPT98		Date Collected: 10/08/93		River Width (ft): 158.0		Distance to Right Edge of Water (ft): 22		
Distance From Right Bank (ft)	Water Depth (ft)	Water Velocity (fps)	Sediment Depth (ft)	Sediment Penetrated (ft)	Sediment Recovered (ft)	Sediment Type	Interval (ft)	Description
31	2.4	0.00	0.50	0.40	0.00	COARSE	0-0.33	DARK BROWN FINE TO COARSE SAND, GRAVEL, ROCKS
55	5.0	0.00	2.50	2.00	1.00	COARSE	0-0.33	GREY CLAY WITH FINE SAND, SOME MEDIUM TO COARSE SAND, GRAVEL
							0.00-0.30	BROWN FINE TO COARSE SAND
							0.30-1.00	GREY CLAY WITH FINE SAND, TRACE FINE TO COARSE SAND
77	4.8	0.00	1.00	0.90	0.70	COARSE	0-0.33	BROWN FINE TO COARSE SAND, GRAVEL, ROCK
							0.00-0.50	BROWN FINE TO COARSE SAND
							0.50-0.70	GREY CLAY WITH FINE SAND, TRACE BROWN FINE TO COARSE SAND
101	4.4	0.00	1.60	1.00	0.70	COARSE	0-0.33	BROWN FINE TO COARSE SAND, GRAVEL, ROCK
							0.00-0.70	BROWN FINE TO COARSE SAND
125	4.0	0.00	3.00	0.00	0.00	COARSE	0-0.33	BROWN FINE TO COARSE SAND, GRAVEL, ROCK, SOME HARD WHITE CRUMBLY MATERIAL
150	2.6	0.00	0.90	0.90	0.00	COARSE	0-0.33	GREY-BROWN FINE TO COARSE SAND, GRAVEL, ROCK
170	1.6	0.00	0.50	0.40	0.00	COARSE	0-0.33	BROWN/DARK GREY FINE SAND AND SILT, SOME COARSE SAND, GRAVEL, ROCKS

ALLIED PAPER, INC./PORTAGE CREEK/KALAMAZOO RIVER SUPERFUND SITE
 TECHNICAL MEMORANDUM 10
 SUMMARY OF SEDIMENT CHARACTERIZATION FIELD OBSERVATIONS

TRANSECT: KPT99		Date Collected: 10/11/93		River Width (ft): 190.0		Distance to Right Edge of Water (ft): 7		
Distance From Right Bank (ft)	Water Depth (ft)	Water Velocity (fps)	Sediment Depth (ft)	Sediment Penetrated (ft)	Sediment Recovered (ft)	Sediment Type	Interval (ft)	Description
16	1.5	0.00	2.10	2.10	1.90	FINE	0-0.33	DARK BROWN FINE SAND AND SILT
							0.00-1.50	DARK BROWN FINE SAND AND SILT
							1.50-1.90	GREY/BROWN FINE SAND, TRACE SILT
49	3.2	0.00	0.50	0.30	0.00	COARSE	0-0.33	BROWN FINE SAND, SOME GRAVEL/ROCKS
81	4.5	0.00	0.40	0.30	0.00	COARSE	0-0.33	NO SAMPLE RECOVERED
112	4.3	0.00	1.20	1.00	0.00	COARSE	0-0.33	BROWN FINE TO COARSE SAND, GRAVEL, ROCKS, TRACE WHITE HARD CRUMBLY MATERIAL
144	4.0	0.00	1.00	1.00	0.60	COARSE	0-0.33	BROWN FINE TO COARSE SAND AND GRAVEL, ROCK, WHITE HARD CRUMBLY MATERIAL
							0.00-0.10	ROCKS
							0.10-0.60	BROWN FINE TO COARSE SAND
191	3.8	0.00	3.70	3.40	2.60	COARSE	0-0.33	DARK GREY TO BROWN FINE TO COARSE SAND AND SILT
							0.00-0.50	DARK GREY TO BROWN FINE TO COARSE SAND AND SILT
							0.50-1.50	BROWN FINE TO COARSE SAND
							1.50-2.60	GREY CLAY

ALLIED PAPER, INC./PORTAGE CREEK/KALAMASOO RIVER SUPERFUND SITE
 TECHNICAL MEMORANDUM 10
 SUMMARY OF SEDIMENT CHARACTERIZATION FIELD OBSERVATIONS

TRANSECT: KPT100		Date Collected: 10/11/93		River Width (ft): 195.0		Distance to Right Edge of Water (ft): 10		
Distance From Right Bank (ft)	Water Depth (ft)	Water Velocity (fps)	Sediment Depth (ft)	Sediment Penetrated (ft)	Sediment Recovered (ft)	Sediment Type	Interval (ft)	Description
19	3.5	0.30	2.50	1.60	1.20	FINE	0-0.33	DARK BROWN FINE SAND AND SILT
							0.00-1.20	DARK GREY TO DARK BROWN FINE SAND AND SILT
50	4.0	1.60	1.40	1.40	1.20	FINE	0-0.33	LIGHT BROWN TO BROWN FINE TO MEDIUM SAND
							0.00-1.20	BROWN TO LIGHT BROWN FINE TO COARSE SAND
79	5.3	1.85	0.70	0.50	0.50	COARSE	0-0.33	BROWN FINE TO COARSE SAND, GRAVEL
							0.00-0.50	BROWN FINE TO COARSE SAND, GRAVEL
110	5.1	1.81	0.30	0.30	0.00	COARSE	0-0.33	BROWN FINE TO COARSE SAND, GRAVEL, ROCKS
139	5.1	1.30	0.50	0.40	0.00	COARSE	0-0.33	BROWN FINE TO COARSE SAND, GRAVEL, ROCK
171	4.9	0.60	1.10	0.90	0.70	FINE	0-0.33	BROWN FINE SAND, TRACE DARK GREY SILT
							0.00-0.40	BROWN FINE SAND
							0.40-0.70	DARK GREY SILT, TRACE FINE SAND
197	3.0	0.85	3.10	3.00	2.20	FINE	0-0.33	BROWN FINE SAND AND DARK GREY SILT
							0.00-0.20	BROWN FINE SAND
							0.20-0.60	DARK GREY SILT, TRACE FINE SAND
							0.60-2.20	BROWN TO GREY FINE SAND

ALLIED PAPER, INC./PORTAGE CREEK/KALAMAZOO RIVER SUPERFUND SITE
 TECHNICAL MEMORANDUM 10
 SUMMARY OF SEDIMENT CHARACTERIZATION FIELD OBSERVATIONS

TRANSECT: KPT101 Date Collected: 10/14/93 River Width (ft): 144.0 Distance to Right Edge of Water (ft): 7								
Distance From Right Bank (ft)	Water Depth (ft)	Water Velocity (fps)	Sediment Depth (ft)	Sediment Penetrated (ft)	Sediment Recovered (ft)	Sediment Type	Interval (ft)	Description
16	2.5	0.00	4.90	4.90	2.00	COARSE	0-0.33	BROWN FINE TO COARSE SAND WITH GRAVEL
							0.00-0.90	BROWN FINE TO COARSE SAND AND GRAVEL
							0.90-1.30	COARSE SAND AND GRAVEL
							1.30-2.00	GREY-BROWN FINE TO MEDIUM SAND
40	6.5	0.00	2.20	2.20	0.90	COARSE	0-0.33	BROWN FINE TO COARSE SAND AND GRAVEL
							0.00-0.30	BROWN FINE TO COARSE SAND AND GRAVEL
							0.30-0.90	BROWN FINE TO COARSE SAND
64	6.8	0.00	0.30	0.00	0.00	COARSE	0-0.33	NO SAMPLE - ROCK AND GRAVEL
88	9.2	0.00	0.40	0.00	0.00	COARSE	0-0.33	BROWN MEDIUM TO COARSE SAND AND GRAVEL
112	6.4	0.00	0.40	0.00	0.00	COARSE	0-0.33	BROWN COARSE SAND AND GRAVEL
145	2.9	0.00	2.00	1.80	0.70	COARSE	0-0.33	BROWN FINE TO COARSE SAND AND GRAVEL
							0.00-0.70	BROWN FINE SAND AND GRAVEL

ALLIED PAPER, INC./PORTAGE CREEK/KALAMASOO RIVER SUPERFUND SITE
TECHNICAL MEMORANDUM 10
SUMMARY OF SEDIMENT CHARACTERIZATION FIELD OBSERVATIONS

TRANSECT: KPT102		Date Collected: 10/14/93		River Width (ft): 216.0		Distance to Right Edge of Water (ft): 12		
Distance From Right Bank (ft)	Water Depth (ft)	Water Velocity (fps)	Sediment Depth (ft)	Sediment Penetrated (ft)	Sediment Recovered (ft)	Sediment Type	Interval (ft)	Description
20	4.1	0.00	3.60	2.10	0.90	FINE	0-0.33	GREY-BROWN FINE TO COARSE SAND WITH SILT AND ORGANIC MATTER
							0.00-0.90	GREY-BROWN FINE TO COARSE SAND WITH SILT & ORGANIC MATTER
48	5.6	0.00	1.40	1.60	0.90	COARSE	0-0.33	GREY-BROWN FINE TO COARSE SAND, GRAVEL, SILT
							0.00-0.30	GREY-BROWN FINE TO COARSE SAND, GRAVEL, SILT
							0.30-0.90	GREY FINE TO COARSE SAND WITH GRAVEL
78	5.8	0.00	2.30	2.10	1.60	FINE	0-0.33	BROWN FINE TO COARSE SAND AND DARK GREY CLAYEY SILT
							0.00-0.20	BROWN FINE TO COARSE SAND
							0.20-0.60	DARK GREY CLAYEY SILT
							0.60-1.00	GREY-BROWN FINE TO COARSE SAND, ROCK, GRAVEL
							1.00-1.60	GREY FINE TO COARSE SAND
108	5.2	0.00	0.80	0.50	0.00	COARSE	0-0.33	BROWN FINE TO COARSE SAND, GRAVEL, ROCKS
139	4.7	0.00	1.50	1.00	0.50	COARSE	0-0.33	BROWN FINE TO COARSE SAND WITH GRAVEL
							0.00-0.10	BROWN COARSE SAND
							0.10-0.50	BROWN FINE TO COARSE SAND
165	3.7	0.00	1.10	1.10	0.70	COARSE	0-0.33	BROWN FINE TO COARSE SAND WITH GRAVEL
							0.00-0.10	COARSE SAND, GRAVEL, ROCKS
							0.10-0.70	BROWN FINE TO COARSE SAND
195	2.5	0.00	2.00	1.60	1.30	FINE	0-0.33	GREY-BROWN FINE SAND WITH SILT
							0.00-0.60	GREY-BROWN FINE SAND WITH SILT
							0.60-1.30	GREY FINE SAND

ALLIED PAPER, INC./PORTAGE CREEK/KALAMASOO RIVER SUPERFUND SITE
 TECHNICAL MEMORANDUM 10
 SUMMARY OF SEDIMENT CHARACTERIZATION FIELD OBSERVATIONS

TRANSECT: KPT102		Date Collected: 10/14/93		River Width (ft): 216.0		Distance to Right Edge of Water (ft): 12		
Distance From Right Bank (ft)	Water Depth (ft)	Water Velocity (fps)	Sediment Depth (ft)	Sediment Penetrated (ft)	Sediment Recovered (ft)	Sediment Type	Interval (ft)	Description
219	0.9	0.00	3.60	3.30	1.40	FINE	0-0.33	GREY-BROWN FINE SAND, GREY SILT
							0.00-1.00	GREY-BROWN FINE SAND, GREY SILT
							1.00-1.40	GREY FINE TO COARSE SAND

ALLIED PAPER, INC./PORTAGE CREEK/KALAMAZOO RIVER SUPERFUND SITE
TECHNICAL MEMORANDUM 10
SUMMARY OF SEDIMENT CHARACTERIZATION FIELD OBSERVATIONS

TRANSECT: KPT103		Date Collected: 10/19/93		River Width (ft): 152.0		Distance to Right Edge of Water (ft): 9		
Distance From Right Bank (ft)	Water Depth (ft)	Water Velocity (fps)	Sediment Depth (ft)	Sediment Penetrated (ft)	Sediment Recovered (ft)	Sediment Type	Interval (ft)	Description
16	4.2	0.00	1.50	1.30	1.30	FINE	0-0.33	BROWN FINE TO MEDIUM SAND, TRACE COARSE SAND/GRAVEL/WHITE HARD MATERIAL
							0.00-0.80	BROWN FINE-COARSE SAND, TRACE GRAVEL/WHITE HARD MATERIAL
							0.80-1.30	BROWN FINE-COARSE SAND, SOME GRAVEL/WHITE HARD MATERIAL
41	9.7	0.00	1.00	5.50	5.00	FINE	0-0.33	DARK BROWN SILT AND FINE SAND WITH TRACE COARSE SAND AND GRAVEL
							0.00-1.40	DARK BROWN SILT, FINE SAND, TRACE COARSE SAND AND GRAVEL
							1.40-5.00	TAN FINE SAND
65	11.3	0.00	5.50	5.50	2.70	FINE	0-0.33	DARK BROWN/DARK GREY SILT WITH SOME FINE SAND, LITTLE COARSE SAND
							0.00-0.30	DARK BROWN/DARK GREY SILT, SOME FINE SAND, LITTLE COARSE
							0.30-2.70	DARK GREY CLAYEY SILT WITH TRACE FINE SAND
94	10.8	0.00	4.90	4.90	2.90	FINE	0-0.33	DARK BROWN/DARK GREY CLAYEY SILT WITH TRACE FINE/COARSE SAND
							0.00-0.20	BROWN/DARK BROWN FINE-MEDIUM SAND WITH TRACE COARSE SAND
							0.20-2.90	DARK GREY CLAYEY SILT WITH FINE SAND
120	9.6	0.00	2.10	2.10	1.00	FINE	0-0.33	DARK GREY CLAYEY SILT WITH SOME BROWN FINE SAND
							0.00-0.10	BROWN FINE SAND
							0.10-1.00	DARK GREY CLAYEY SILT
152	6.0	0.00	3.60	3.60	2.40	FINE	0-0.33	BLACK CLAYEY SILT WITH STRONG ORGANIC ODOR
							0.00-1.20	BLACK CLAYEY SILT
							1.20-2.40	BLACK CLAYEY SILT WITH TRACE FINE SILT

ALLIED PAPER, INC./PORTAGE CREEK/KALAMASOO RIVER SUPERFUND SITE
TECHNICAL MEMORANDUM 10
SUMMARY OF SEDIMENT CHARACTERIZATION FIELD OBSERVATIONS

TRANSECT: KPT104		Date Collected: 10/19/93		River Width (ft): 210.0		Distance to Right Edge of Water (ft): 17		
Distance From Right Bank (ft)	Water Depth (ft)	Water Velocity (fps)	Sediment Depth (ft)	Sediment Penetrated (ft)	Sediment Recovered (ft)	Sediment Type	Interval (ft)	Description
26	4.3	1.99	3.10	3.00	1.60	FINE	0-0.33	BLACK CLAY AND SILT
							0.00-1.30	BLACK CLAY AND SILT
							1.30-1.60	BROWN FINE SAND AND SILT
57	8.0	3.30	4.90	4.90	2.90	FINE	0-0.33	DARK GREY CLAY AND SILT WITH TRACE FINE SAND
							0.00-2.90	DARK GREY CLAY AND SILT WITH TRACE FINE SAND
88	8.3	3.10	4.70	4.70	3.30	FINE	0-0.33	DARK GREY SILT AND CLAY WITH TRACE COARSE SAND
							0.00-3.30	DARK GREY SILT AND CLAY WITH TRACE COARSE SAND
122	9.0	2.50	3.80	3.80	2.70	FINE	0-0.33	DARK GREY/BLACK SILT AND CLAY
							0.00-2.70	DARK GREY/BLACK SILT AND CLAY
152	9.6	1.40	3.80	3.80	2.40	FINE	0-0.33	DARK GREY/BLACK SILT AND CLAY
							0.00-2.40	DARK GREY/BLACK SILT AND CLAY
185	10.0	0.10	0.20	0.00	0.00	COARSE	0-0.33	NO SAMPLE OBTAINED
219	2.9	0.30	5.30	5.30	4.40	FINE	0-0.33	LIGHT BROWN/BROWN FINE SAND, TRACE MEDIUM SAND/GRAVEL
							0.00-0.50	LIGHT BROWN/BROWN FINE SAND, TRACE MEDIUM SAND/GRAVEL
							0.50-3.40	ORANGE FINE/COARSE SAND
							3.40-4.00	BROWN FINE SAND
							4.00-4.40	BROWN FINE SAND AND CLAY

ALLIED PAPER, INC./PORTAGE CREEK/KALAMAZOO RIVER SUPERFUND SITE
TECHNICAL MEMORANDUM 10
SUMMARY OF SEDIMENT CHARACTERIZATION FIELD OBSERVATIONS

TRANSECT: KPT105		Date Collected: 10/20/93		River Width (ft): 185.0		Distance to Right Edge of Water (ft): 7		
Distance From Right Bank (ft)	Water Depth (ft)	Water Velocity (fps)	Sediment Depth (ft)	Sediment Penetrated (ft)	Sediment Recovered (ft)	Sediment Type	Interval (ft)	Description
15	3.2	0.00	2.80	2.60	2.20	FINE	0-0.33	TAN FINE SAND AND SILT
							0.00-1.70	TAN FINE SAND AND SILT
							1.70-2.20	TAN FINE SAND
49	6.1	0.00	0.50	0.40	0.00	COARSE	0-0.33	TAN FINE TO COARSE SAND, GRAVEL, ROCK, SILT
84	7.5	0.00	1.00	1.00	0.90	COARSE	0-0.33	BROWN FINE SAND, TRACE MEDIUM TO COARSE SAND, GRAVEL
							0.00-0.70	BROWN FINE TO COARSE SAND, GRAVEL
							0.70-0.90	GREY TIGHT FINE SAND
117	9.5	0.00	0.50	0.50	0.00	COARSE	0-0.33	GREY TO BROWN FINE TO COARSE SAND AND GRAVEL
150	9.5	0.00	0.30	0.30	0.00	COARSE	0-0.33	0.3' ON TOP OF ROCK AND GRAVEL, DARK BROWN SILT WITH FINE TO COARSE SAND
184	3.4	0.00	5.80	5.40	2.90	FINE	0-0.33	DARK GREY SILT AND CLAY
							0.00-2.30	DARK GREY SILT AND CLAY
							2.30-2.90	DARK BROWN FINE SAND AND SILT

ALLIED PAPER, INC./PORTAGE CREEK/KALAMAZOO RIVER SUPERFUND SITE
TECHNICAL MEMORANDUM 10
SUMMARY OF SEDIMENT CHARACTERISATION FIELD OBSERVATIONS

TRANSECT: KPT106		Date Collected: 10/20/93		River Width (ft): 240.0		Distance to Right Edge of Water (ft): 19		
Distance From Right Bank (ft)	Water Depth (ft)	Water Velocity (fps)	Sediment Depth (ft)	Sediment Penetrated (ft)	Sediment Recovered (ft)	Sediment Type	Interval (ft)	Description
29	2.4	0.00	7.10	7.00	3.00	FINE	0-0.33	BROWN SILT AND GREY SILTY CLAY
							0.00-0.10	BROWN SILT
							0.10-0.50	GREY SILTY CLAY
							0.50-2.40	DARK BROWN TO GREY CLAYEY SILT
							2.40-3.00	BROWN SAND AND SILT, SOME GRAVEL
62	6.0	0.00	6.20	5.80	3.00	FINE	0-0.33	DARK BROWN SILT AND FINE SAND
							0.00-0.20	BROWN FINE SAND
							0.20-1.00	DARK BROWN FINE SAND AND SILT
							1.00-3.00	DARK BROWN CLAYEY SILT
93	6.5	0.00	6.00	6.00	2.70	FINE	0-0.33	DARK BROWN CLAYEY SILT AND FINE SAND
							0.00-0.20	BROWN FINE SAND
							0.20-2.70	DARK BROWN CLAYEY SILT
124	7.1	0.00	6.30	6.30	3.30	FINE	0-0.33	DARK BROWN FINE TO COARSE SAND
							0.00-0.80	BROWN FINE TO COARSE SAND
							0.80-3.30	DARK GREY CLAYEY SILT
155	7.8	0.00	6.00	6.00	3.40	FINE	0-0.33	BROWN FINE TO MEDIUM SAND
							0.00-1.40	BROWN FINE TO MEDIUM SAND
							1.40-3.40	DARK GREY CLAYEY SILT

ALLIED PAPER, INC./PORTAGE CREEK/KALAMAZOO RIVER SUPERFUND SITE
 TECHNICAL MEMORANDUM 10
 SUMMARY OF SEDIMENT CHARACTERISATION FIELD OBSERVATIONS

TRANSECT: KPT106		Date Collected: 10/20/93		River Width (ft): 240.0		Distance to Right Edge of Water (ft): 19		
Distance From Right Bank (ft)	Water Depth (ft)	Water Velocity (fps)	Sediment Depth (ft)	Sediment Penetrated (ft)	Sediment Recovered (ft)	Sediment Type	Interval (ft)	Description
187	8.0	0.00	6.00	6.00	2.70	FINE	0-0.33	BLACK CLAYEY SILT, SOME FINE SAND
							0.00-0.10	BROWN FINE TO MEDIUM SAND
							0.10-2.70	DARK BROWN TO BLACK CLAYEY SILT
219	8.2	0.00	4.30	4.30	1.70	FINE	0-0.33	DARK BROWN CLAYEY SILT, TRACE GRAVEL, FINE SAND
							0.00-0.20	BROWN FINE SAND
							0.20-1.70	DARK BROWN CLAYEY SILT
250	4.6	0.00	5.70	5.70	4.80	FINE	0-0.33	GREY FINE SAND AND SILT
							0.00-2.40	GREY FINE SAND AND SILT
							2.40-4.80	GREY FINE SAND

ALLIED PAPER, INC./PORTAGE CREEK/KALAMAZOO RIVER SUPERFUND SITE
TECHNICAL MEMORANDUM 10
SUMMARY OF SEDIMENT CHARACTERIZATION FIELD OBSERVATIONS

TRANSECT: KPT107		Date Collected: 10/20/93		River Width (ft): 281.0		Distance to Right Edge of Water (ft): 21		
Distance From Right Bank (ft)	Water Depth (ft)	Water Velocity (fps)	Sediment Depth (ft)	Sediment Penetrated (ft)	Sediment Recovered (ft)	Sediment Type	Interval (ft)	Description
30	5.8	0.00	7.60	7.60	7.10	FINE	0-0.33	BROWN FINE TO COARSE SAND
							0.00-2.50	BROWN FINE TO COARSE SAND
							2.50-7.10	LIGHT BROWN FINE SAND
67	8.4	0.00	7.00	7.00	3.00	FINE	0-0.33	BLACK SILT AND FINE SAND WITH TRACE BROWN FINE SAND
							0.00-0.10	BROWN FINE SAND
							0.10-2.60	DARK GREY TO BLACK CLAYEY SILT
							2.60-3.00	DARK BROWN FINE SAND AND SILT
103	6.3	0.00	7.80	7.80	4.70	FINE	0-0.33	BROWN FINE SAND
							0.00-1.50	BROWN FINE SAND
							1.50-4.70	DARK GREY TO BLACK CLAYEY SILT
139	7.3	0.00	9.40	9.40	4.00	FINE	0-0.33	DARK GREY CLAYEY SILT WITH FINE SAND
							0.00-1.30	DARK GREY CLAYEY SILT AND FINE SAND
							1.30-4.00	DARK GREY SILTY CLAY
177	4.4	0.00	7.90	6.40	2.90	FINE	0-0.33	BROWN TO GREY FINE TO MEDIUM SAND
							0.00-2.20	BROWN TO GREY FINE TO MEDIUM SAND
							2.20-2.90	DARK BROWN CLAYEY SILT
215	4.7	0.00	8.00	8.00	4.50	FINE	0-0.33	BROWN TO GREY FINE TO MEDIUM SAND
							0.00-1.40	BROWN TO GREY FINE TO MEDIUM SAND
							1.40-4.50	DARK GREY CLAYEY SILT

ALLIED PAPER, INC./PORTAGE CREEK/KALAMAZOO RIVER SUPERFUND SITE
 TECHNICAL MEMORANDUM 10
 SUMMARY OF SEDIMENT CHARACTERIZATION FIELD OBSERVATIONS

TRANSECT: KPT107		Date Collected: 10/20/93		River Width (ft): 281.0		Distance to Right Edge of Water (ft): 21		
Distance From Right Bank (ft)	Water Depth (ft)	Water Velocity (fps)	Sediment Depth (ft)	Sediment Penetrated (ft)	Sediment Recovered (ft)	Sediment Type	Interval (ft)	Description
253	4.1	0.00	9.60	7.80	4.50	FINE	0-0.33	BROWN TO GREY FINE TO MEDIUM SAND
							0.00-1.40	BROWN TO GREY FINE TO MEDIUM SAND
							1.40-4.50	DARK GREY CLAYEY SILT
292	2.5	0.00	8.80	8.80	3.20	FINE	0-0.33	BROWN FINE SAND AND GREY SILTY CLAY
							0.00-0.20	BROWN FINE SAND
							0.20-1.60	GREY TO DARK GREY SILTY CLAY
							1.60-2.20	BROWN FINE SAND, SOME SILT
							2.20-3.20	BROWN TO GREY FINE SAND

ALLIED PAPER, INC./PORTAGE CREEK/KALAMAZOO RIVER SUPERFUND SITE
TECHNICAL MEMORANDUM 10
SUMMARY OF SEDIMENT CHARACTERIZATION FIELD OBSERVATIONS

TRANSECT: KPT108		Date Collected: 10/21/93		River Width (ft): 142.0		Distance to Right Edge of Water (ft): 0		
Distance From Right Bank (ft)	Water Depth (ft)	Water Velocity (fps)	Sediment Depth (ft)	Sediment Penetrated (ft)	Sediment Recovered (ft)	Sediment Type	Interval (ft)	Description
91	3.5	0.75	8.40	8.40	4.30	FINE	0-0.33	DARK GREY SILT AND FINE SAND
							0.00-1.00	DARK GREY SILT AND FINE SAND
							1.00-2.50	DARK GREY CLAYEY SILT
							2.50-3.70	TAN FINE SAND
							3.70-4.30	BROWN FINE SAND AND SILT
309	2.2	0.30	6.80	6.80	4.20	FINE	0-0.33	DARK BROWN FINE SAND WITH SILT AND ORGANICS
							0.00-0.30	DARK BROWN FINE SAND AND SILT WITH ORGANICS
							0.30-4.20	GREY TO DARK GREY SILT AND CLAY
454	2.6	0.95	8.80	8.80	3.20	FINE	0-0.33	FINE GREY/BROWN SAND
							0.00-1.10	DARK BROWN FINE SAND, TRACE OF SILT
							1.10-2.50	DARK GREY CLAYEY SILT
							2.50-3.20	LIGHT BROWN FINE SAND
589	6.3	1.70	8.00	8.00	5.40	FINE	0-0.33	GREY-BROWN FINE SAND
							0.00-0.90	GREY TO BROWN FINE SAND
							0.90-2.40	DARK GREY CLAY/SILT
							2.40-5.40	GREY-BROWN FINE SAND
736	3.0	0.85	9.20	9.20	4.00	FINE	0-0.33	DARK BROWN FINE SAND WITH SILT AND ORGANIC MATTER
							0.00-1.60	DARK BROWN FINE SAND AND SILT
							1.60-4.00	DARK GREY CLAY AND SILT

ALLIED PAPER, INC./PORTAGE CREEK/KALAMAZOO RIVER SUPERFUND SITE
TECHNICAL MEMORANDUM 10
SUMMARY OF SEDIMENT CHARACTERISATION FIELD OBSERVATIONS

TRANSECT: KPT108		Date Collected: 10/21/93		River Width (ft): 910.0		Distance to Right Edge of Water (ft): 0		
Distance From Right Bank (ft)	Water Depth (ft)	Water Velocity (fps)	Sediment Depth (ft)	Sediment Penetrated (ft)	Sediment Recovered (ft)	Sediment Type	Interval (ft)	Description
882	2.4	0.47	9.00	9.00	4.20	FINE	0-0.33	DARK BROWN FINE SAND WITH SILT
							0.00-2.00	DARK BROWN FINE SAND AND TRACE SILT
							2.00-4.20	GREY TO DARK GREY CLAY AND SILT, TRACE FINE SAND
1029	2.7	0.25	7.50	7.50	2.80	FINE	0-0.33	DARK BROWN SILT, TRACE FINE SAND
							0.00-0.70	DARK BROWN SILT, TRACE FINE SAND
							0.70-2.80	GREY TO DARK GREY SILT AND CLAY
1185	2.4	0.14	5.50	5.20	3.50	FINE	0-0.33	GREY TO DARK GREY SILT AND CLAY, FIBERS PRESENT, ORGANIC ODOR
							0.00-2.30	GREY TO DARK GREY SILT AND CLAY
							2.30-3.50	TAN TO GREY FINE SAND, TRACE SILT

ALLIED PAPER, INC./PORTAGE CREEK/KALAMAZOO RIVER SUPERFUND SITE
TECHNICAL MEMORANDUM 10
SUMMARY OF SEDIMENT CHARACTERIZATION FIELD OBSERVATIONS

TRANSECT: KPT109		Date Collected: 10/21/93		River Width (ft): 193.0		Distance to Right Edge of Water (ft): 14		
Distance From Right Bank (ft)	Water Depth (ft)	Water Velocity (fps)	Sediment Depth (ft)	Sediment Penetrated (ft)	Sediment Recovered (ft)	Sediment Type	Interval (ft)	Description
23	4.2	0.00	8.30	6.00	2.60	FINE	0-0.33	DARK GREY SILT WITH CLAY, TRACE FINE SAND
							0.00-0.10	BROWN FINE SAND
							0.10-0.70	DARK GREY SILT AND FINE SAND
							0.70-1.30	BROWN FINE SAND
							1.30-2.60	DARK GREY SILT WITH CLAY MATERIAL
51	6.9	0.00	7.90	7.90	4.30	FINE	0-0.33	DARK GREY SILT, CLAY AND TRACE FINE SAND
							0.00-0.30	BROWN FINE SAND
							0.30-4.30	DARK GREY CLAYEY SILT
77	7.8	0.00	6.20	6.20	4.10	FINE	0-0.33	DARK GREY CLAYEY SILT, ORGANIC ODOR
							0.00-4.10	DARK GREY SILT AND CLAY
103	9.5	0.00	5.70	5.70	4.50	FINE	0-0.33	DARK GREY CLAYEY SILT, ORGANIC ODOR
							0.00-4.50	DARK GREY CLAYEY SILT
139	11.2	0.00	5.00	5.00	4.00	FINE	0-0.33	DARK GREY CLAYEY SILT, ORGANIC ODOR
							0.00-4.00	DARK GREY CLAYEY SILT
168	7.5	0.00	1.80	1.80	1.80	FINE	0-0.33	DARK GREY FINE SAND
							0.00-0.50	GREY FINE SAND
							0.50-1.80	DARK GREY SILT AND CLAY

ALLIED PAPER, INC./PORTAGE CREEK/KALAMAZOO RIVER SUPERFUND SITE
 TECHNICAL MEMORANDUM 10
 SUMMARY OF SEDIMENT CHARACTERIZATION FIELD OBSERVATIONS

TRANSECT: KPT109		Date Collected: 10/21/93		River Width (ft): 193.0		Distance to Right Edge of Water (ft): 14		
Distance From Right Bank (ft)	Water Depth (ft)	Water Velocity (fps)	Sediment Depth (ft)	Sediment Penetrated (ft)	Sediment Recovered (ft)	Sediment Type	Interval (ft)	Description
202	3.0	0.00	5.30	4.20	4.10	FINE	0-0.33	BROWN FINE SAND, TRACE SILT
							0.00-2.20	BROWN FINE SAND, TRACE SILT
							2.20-3.60	GREY TO DARK GREY SILTY CLAY
							3.60-4.10	BROWN FINE SAND

ALLIED PAPER, INC./PORTAGE CREEK/KALAMAZOO RIVER SUPERFUND SITE
 TECHNICAL MEMORANDUM 10
 SUMMARY OF SEDIMENT CHARACTERIZATION FIELD OBSERVATIONS

TRANSECT: KPT110		Date Collected: 10/22/93		River Width (ft): 205.0		Distance to Right Edge of Water (ft): 47		
Distance From Right Bank (ft)	Water Depth (ft)	Water Velocity (fps)	Sediment Depth (ft)	Sediment Penetrated (ft)	Sediment Recovered (ft)	Sediment Type	Interval (ft)	Description
56	3.6	0.00	1.50	1.50	1.00	COARSE	0-0.33	BROWN FINE TO COARSE SAND WITH GRAVEL, ROCKS
							0.00-1.00	BROWN FINE TO COARSE SAND WITE GRAVEL, ROCKS
93	5.5	0.00	0.50	0.00	0.00	COARSE	0-0.33	BROWN MEDIUM TO COARSE SAND, GRAVEL, ROCKS
132	5.3	0.00	0.30	0.00	0.00	COARSE	0-0.33	BROWN FINE TO COARSE SAND, GRAVEL, ROCKS
166	4.7	0.00	0.30	0.00	0.00	COARSE	0-0.33	BROWN FINE TO COARSE SAND WITE GRAVEL AND HARD WHITE CRUMBLY MATERIAL
205	3.5	0.00	0.40	0.00	0.00	COARSE	0-0.33	BROWN FINE TO COARSE SAND WITH GRAVEL
244	3.0	0.00	1.50	1.20	0.80	FINE	0-0.33	DARK BROWN FINE SAND, TRACE SILT WITH ORGANIC MATTER
							0.00-0.30	DARK BROWN FINE SAND, TRACE SILT
							0.30-0.80	DARK BROWN FINE TO COARSE SAND, TRACE GRAVEL

ALLIED PAPER, INC./PORTAGE CREEK/KALAMAZOO RIVER SUPERFUND SITE
 TECHNICAL MEMORANDUM 10
 SUMMARY OF SEDIMENT CHARACTERISATION FIELD OBSERVATIONS

TRANSECT: KPT111		Date Collected: 10/25/93		River Width (ft): 196.0		Distance to Right Edge of Water (ft): 15		
Distance From Right Bank (ft)	Water Depth (ft)	Water Velocity (fps)	Sediment Depth (ft)	Sediment Penetrated (ft)	Sediment Recovered (ft)	Sediment Type	Interval (ft)	Description
24	2.0	0.00	0.80	0.60	0.00	COARSE	0-0.33	BROWN FINE TO COARSE SAND WITH GRAVEL
57	3.2	0.00	0.30	0.00	0.00	COARSE	0-0.33	BROWN FINE TO COARSE SAND WITH GRAVEL
89	5.1	0.00	0.00	0.00	0.00	COARSE	0-0.33	NO SAMPLE, ROCK BOTTOM
119	4.6	0.00	0.20	0.00	0.00	COARSE	0-0.33	BROWN FINE TO MEDIUM SAND, TRACE WHITE HARD CRUMBLY MATERIAL
151	4.3	0.00	0.20	0.00	0.00	COARSE	0-0.33	BROWN FINE TO MEDIUM SAND, TRACE HARD WHITE CRUMBLY MATERIAL
198	3.1	0.00	1.10	1.10	0.00	COARSE	0-0.33	BROWN FINE SAND, TRACE MEDIUM TO COARSE SAND WITH GRAVEL

ALLIED PAPER, INC./PORTAGE CREEK/KALAMAZOO RIVER SUPERFUND SITE
TECHNICAL MEMORANDUM 10
SUMMARY OF SEDIMENT CHARACTERIZATION FIELD OBSERVATIONS

TRANSECT: KPT112		Date Collected: 10/25/93		River Width (ft): 145.0		Distance to Right Edge of Water (ft): 19		
Distance From Right Bank (ft)	Water Depth (ft)	Water Velocity (fps)	Sediment Depth (ft)	Sediment Penetrated (ft)	Sediment Recovered (ft)	Sediment Type	Interval (ft)	Description
29	2.3	1.60	0.60	0.60	0.00	COARSE	0-0.33	BROWN FINE TO COARSE SAND WITH GRAVEL
54	3.8	3.00	1.00	0.00	0.00	COARSE	0-0.33	BROWN FINE TO COARSE SAND WITH GRAVEL
78	6.1	3.15	0.90	0.00	0.00	COARSE	0-0.33	NO TOP 4" SAMPLE RECOVERABLE
98	9.2	3.10	0.00	0.00	0.00	COARSE	0-0.33	NO SAMPLE OBTAINED, ROCK/GRAVEL BOTTOM
121	8.2	3.85	0.00	0.00	0.00	COARSE	0-0.33	NO SAMPLE OBTAINED, ROCK/GRAVEL BOTTOM
154	3.2	1.90	0.30	0.00	0.00	COARSE	0-0.33	BROWN MEDIUM TO COARSE SAND, GRAVEL, ROCK

ALLIED PAPER, INC./PORTAGE CREEK/KALAMAZOO RIVER SUPERFUND SITE
 TECHNICAL MEMORANDUM 10
 SUMMARY OF SEDIMENT CHARACTERIZATION FIELD OBSERVATIONS

TRANSECT: KPT113		Date Collected: 10/26/93		River Width (ft): 155.0		Distance to Right Edge of Water (ft): 10		
Distance From Right Bank (ft)	Water Depth (ft)	Water Velocity (fps)	Sediment Depth (ft)	Sediment Penetrated (ft)	Sediment Recovered (ft)	Sediment Type	Interval (ft)	Description
19	2.6	1.61	0.60	0.60	0.00	COARSE	0-0.33	BROWN FINE TO COARSE SAND WITH GRAVEL
46	4.1	3.40	0.70	0.70	0.70	COARSE	0-0.33	BROWN FINE TO COARSE SAND WITH GRAVEL
							0.00-0.70	BROWN FINE TO COARSE SAND WITH GRAVEL
72	3.8	3.80	0.20	0.00	0.00	COARSE	0-0.33	BROWN FINE TO COARSE SAND WITH GRAVEL
98	5.8	3.70	0.30	0.00	0.00	COARSE	0-0.33	BROWN FINE TO COARSE SAND, ROCKS
124	6.2	4.10	1.80	1.50	0.80	COARSE	0-0.33	BROWN FINE TO COARSE SAND
							0.00-0.30	BROWN FINE SAND, TRACE GRAVEL AND COARSE SAND
							0.30-0.80	BROWN COARSE SAND AND GRAVEL
156	3.4	3.20	1.10	1.00	1.00	COARSE	0-0.33	BROWN FINE TO COARSE SAND
							0.00-1.00	BROWN FINE TO COARSE SAND

ALLIED PAPER, INC./PORTAGE CREEK/KALAMAZOO RIVER SUPERFUND SITE
 TECHNICAL MEMORANDUM 10
 SUMMARY OF SEDIMENT CHARACTERIZATION FIELD OBSERVATIONS

TRANSECT: KPT114		Date Collected: 10/26/93		River Width (ft): 136.0		Distance to Right Edge of Water (ft): 12		
Distance From Right Bank (ft)	Water Depth (ft)	Water Velocity (fps)	Sediment Depth (ft)	Sediment Penetrated (ft)	Sediment Recovered (ft)	Sediment Type	Interval (ft)	Description
23	4.5	0.00	2.50	2.40	1.70	FINE	0-0.33	BROWN FINE SAND, TRACE OF MEDIUM SAND
							0.00-0.40	BROWN FINE SAND, TRACE OF MEDIUM SAND
							0.40-1.70	BROWN COARSE SAND AND GRAVEL, SOME FINE SAND
46	5.0	0.00	0.30	0.30	0.00	COARSE	0-0.33	BROWN FINE TO COARSE SAND, GRAVEL, ROCKS
71	5.0	0.00	1.00	1.00	0.50	FINE	0-0.33	BROWN TO TAN FINE TO MEDIUM SAND WITH WHITE HARD CRUMBLY MATERIAL
							0.00-0.50	BROWN/TAN FINE-COARSE SAND, WHITE HARD CRUMBLY MATERIAL
95	4.5	0.00	3.20	3.00	1.20	COARSE	0-0.33	TAN TO ORANGE FINE TO COARSE SAND
							0.00-0.50	TAN TO ORANGE FINE TO COARSE SAND
							0.50-1.20	TAN TO ORANGE COARSE SAND AND GRAVEL
118	4.6	0.00	0.60	0.60	0.00	COARSE	0-0.33	TAN TO BROWN FINE TO COARSE SAND, TRACE OF GRAVEL
139	4.0	0.00	1.10	1.00	0.60	COARSE	0-0.33	BROWN TO TAN FINE TO COARSE SAND WITH GRAVEL
							0.00-0.60	BROWN TO TAN FINE TO COARSE SAND WITH GRAVEL

ALLIED PAPER, INC./PORTAGE CREEK/KALAMAZOO RIVER SUPERFUND SITE
TECHNICAL MEMORANDUM 10
SUMMARY OF SEDIMENT CHARACTERIZATION FIELD OBSERVATIONS

TRANSECT: KPT115		Date Collected: 10/26/93		River Width (ft): 97.0		Distance to Right Edge of Water (ft): 6		
Distance From Right Bank (ft)	Water Depth (ft)	Water Velocity (fps)	Sediment Depth (ft)	Sediment Penetrated (ft)	Sediment Recovered (ft)	Sediment Type	Interval (ft)	Description
10	2.5	0.00	2.70	2.70	1.80	FINE	0-0.33	DARK BROWN TO DARK GREY FINE SAND WITH SOME SILT
							0.00-0.70	DARK BROWN TO DARK GREY FINE SAND WITH SOME SILT
							0.70-1.80	GREY-BROWN FINE TO COARSE SAND
28	3.3	0.00	3.60	3.60	2.20	COARSE	0-0.33	BROWN TO DARK GREY FINE TO COARSE SAND, TRACE OF GRAVEL
							0.00-0.20	BROWN FINE TO COARSE SAND, TRACE GRAVEL
							0.20-2.20	DARK GREY TO GREY FINE TO MEDIUM SAND
45	3.0	0.00	0.50	0.50	0.00	COARSE	0-0.33	BROWN TO DARK GREY FINE TO COARSE SAND WITH GRAVEL
64	3.6	0.00	0.30	0.30	0.00	COARSE	0-0.33	BROWN TO DARK GREY FINE SAND, TRACE OF COARSE SAND AND GRAVEL
81	2.9	0.00	2.90	2.30	2.00	FINE	0-0.33	DARK GREY TO DARK BROWN FINE SAND AND SILT
							0.00-0.50	DARK GREY TO DARK BROWN FINE SAND AND SILT
							0.50-2.00	GREY FINE TO MEDIUM SAND
98	0.6	0.00	3.80	3.80	2.40	FINE	0-0.33	DARK BROWN SILT WITH FINE SAND
							0.00-0.40	DARK BROWN SILT WITH FINE SAND
							0.40-1.00	GREY SILTEY CLAY
							1.00-2.40	GREY FINE TO MEDIUM SAND

ALLIED PAPER, INC./PORTAGE CREEK/KALAMAZOO RIVER SUPERFUND SITE
 TECHNICAL MEMORANDUM 10
 SUMMARY OF SEDIMENT CHARACTERIZATION FIELD OBSERVATIONS

TRANSECT: KPT115A		Date Collected: 10/26/93		River Width (ft): 55.0		Distance to Right Edge of Water (ft): 6		
Distance From Right Bank (ft)	Water Depth (ft)	Water Velocity (fps)	Sediment Depth (ft)	Sediment Penetrated (ft)	Sediment Recovered (ft)	Sediment Type	Interval (ft)	Description
10	2.3	-0.15	0.70	0.00	0.00	COARSE	0-0.33	DARK GREY FINE TO COARSE SAND, GRAVEL, TRACE SILT
21	4.1	0.90	0.50	0.50	0.00	COARSE	0-0.33	BROWN FINE TO COARSE SAND WITH GRAVEL
32	4.0	2.15	1.70	1.70	1.00	COARSE	0-0.33	BROWN FINE TO COARSE SAND WITH GRAVEL
							0.00-1.00	BROWN FINE TO COARSE SAND WITH GRAVEL
42	3.5	2.74	1.50	1.40	0.90	COARSE	0-0.33	BROWN FINE TO COARSE SAND, GRAVEL, ROCKS 1.5" IN DIAMETER
							0.00-0.90	BROWN FINE TO COARSE SAND, GRAVEL, ROCKS
52	3.0	2.55	1.40	1.40	0.90	COARSE	0-0.33	BROWN FINE TO COARSE SAND WITH GRAVEL, ROCKS
							0.00-0.90	BROWN FINE TO COARSE SAND WITH GRAVEL, ROCKS
58	2.6	1.55	0.40	0.00	0.00	COARSE	0-0.33	BROWN FINE TO COARSE SAND, GRAVEL, ROCKS

ALLIED PAPER, INC./PORTAGE CREEK/KALAMAZOO RIVER SUPERFUND SITE
 TECHNICAL MEMORANDUM 10
 SUMMARY OF SEDIMENT CHARACTERIZATION FIELD OBSERVATIONS

TRANSECT: KPT116		Date Collected: 10/27/93		River Width (ft): 236.0		Distance to Right Edge of Water (ft): 9		
Distance From Right Bank (ft)	Water Depth (ft)	Water Velocity (fps)	Sediment Depth (ft)	Sediment Penetrated (ft)	Sediment Recovered (ft)	Sediment Type	Interval (ft)	Description
17	2.8	0.00	0.50	0.00	0.00	COARSE	0-0.33	BROWN FINE TO COARSE SAND WITH GRAVEL
55	3.4	0.00	0.20	0.00	0.00	COARSE	0-0.33	BROWN MEDIUM TO COARSE SAND WITH GRAVEL, ROCKS
91	3.1	0.00	0.30	0.00	0.00	COARSE	0-0.33	BROWN FINE TO COARSE SAND, GRAVEL, ROCKS
130	3.0	0.00	0.30	0.00	0.00	COARSE	0-0.33	BROWN FINE TO COARSE SAND, GRAVEL, ROCKS
165	3.4	0.00	0.40	0.00	0.00	COARSE	0-0.33	BROWN FINE TO COARSE SAND, GRAVEL, ROCKS
201	4.2	0.00	0.40	0.00	0.00	COARSE	0-0.33	BROWN MEDIUM TO COARSE SAND, GRAVEL, TRACE FINE SAND
237	3.0	0.00	1.40	1.40	1.30	COARSE	0-0.33	BROWN FINE SAND, SOME COARSE SAND WITH GRAVEL, WHITE HARD CRUMBLY MATERIAL
							0.00-0.60	BROWN FINE SAND, SOME COARSE/GRAVEL, WHITE HARD MATERIAL
							0.60-1.30	LIGHT BROWN FINE SAND WITH WHITE HARD CRUMBLY MATERIAL

ALLIED PAPER, INC./PORTAGE CREEK/KALAMAZOO RIVER SUPERFUND SITE
TECHNICAL MEMORANDUM 10
SUMMARY OF SEDIMENT CHARACTERIZATION FIELD OBSERVATIONS

TRANSECT: KPT117		Date Collected: 10/27/93		River Width (ft): 211.0		Distance to Right Edge of Water (ft): 19		
Distance From Right Bank (ft)	Water Depth (ft)	Water Velocity (fps)	Sediment Depth (ft)	Sediment Penetrated (ft)	Sediment Recovered (ft)	Sediment Type	Interval (ft)	Description
28	3.3	0.00	1.40	1.40	1.20	FINE	0-0.33	DARK GREY/DARK BROWN FINE SAND AND SILT WITH ORGANIC MATTER
							0.00-0.60	DARK GREY/DARK BROWN FINE SAND AND SILT
							0.60-1.20	DARK GREY FINE TO MEDIUM SAND
62	5.3	0.00	1.00	1.00	1.00	COARSE	0-0.33	BROWN FINE TO COARSE SAND, WOOD DEBRIS, ROCKS
							0.00-1.00	BROWN FINE TO COARSE SAND
95	7.3	0.00	6.10	6.10	3.70	COARSE	0-0.33	BROWN FINE TO COARSE SAND WITH GRAVEL
							0.00-0.60	BROWN FINE TO COARSE SAND WITH GRAVEL
							0.60-3.70	GREY-BROWN FINE TO MEDIUM SAND
127	4.7	0.00	1.30	1.30	1.00	COARSE	0-0.33	BROWN TO GREY FINE TO COARSE SAND WITH GRAVEL
							0.00-1.00	BROWN TO GREY FINE TO COARSE SAND WITH GRAVEL
160	4.5	0.00	1.00	0.90	0.80	COARSE	0-0.33	BROWN FINE TO COARSE SAND WITH GRAVEL
							0.00-0.10	COARSE SAND, GRAVEL
							0.10-0.80	BROWN FINE TO COARSE SAND WITH GRAVEL
192	5.6	0.00	1.70	1.70	1.30	COARSE	0-0.33	GREY TO BROWN FINE TO COARSE SAND WITH GRAVEL
							0.00-1.30	GREY TO BROWN FINE TO COARSE SAND WITH GRAVEL
222	3.7	0.00	1.80	1.20	0.80	COARSE	0-0.33	DARK GREY FINE TO COARSE SAND WITH GRAVEL, ORGANIC MATTER
							0.00-0.80	DARK GREY FINE TO COARSE SAND WITH GRAVEL

ALLIED PAPER, INC./PORTAGE CREEK/KALAMAZOO RIVER SUPERFUND SITE
TECHNICAL MEMORANDUM 10
SUMMARY OF SEDIMENT CHARACTERIZATION FIELD OBSERVATIONS

TRANSECT: KPT118		Date Collected: 10/27/93		River Width (ft): 301.0		Distance to Right Edge of Water (ft): 9		
Distance From Right Bank (ft)	Water Depth (ft)	Water Velocity (fps)	Sediment Depth (ft)	Sediment Penetrated (ft)	Sediment Recovered (ft)	Sediment Type	Interval (ft)	Description
17	3.8	-0.40	1.20	1.00	1.00	FINE	0-0.33	DARK BROWN FINE SAND AND SILT, TRACE OF COARSE SAND
							0.00-0.80	DARK BROWN FINE SAND AND SILT, TRACE OF COARSE SAND
							0.80-1.00	DARK GREY FINE TO COARSE SAND WITH GRAVEL
58	4.8	2.65	0.40	0.40	0.00	COARSE	0-0.33	DARK GREY FINE TO COARSE SAND WITH GRAVEL
96	4.2	3.70	1.00	0.70	0.50	COARSE	0-0.33	BROWN TO GREY FINE SAND WITH WHITE HARD CRUMBLY MATERIAL AND ROCKS
							0.00-0.50	BROWN/GREY FINE SAND, WHITE HARD CRUMBLY MATERIAL & ROCKS
136	4.0	1.80	0.70	0.50	0.00	COARSE	0-0.33	BROWN FINE TO COARSE SAND WITH GRAVEL
176	4.0	0.40	0.30	0.30	0.00	COARSE	0-0.33	BROWN FINE TO COARSE SAND WITH GRAVEL
217	3.6	3.60	0.50	0.50	0.00	COARSE	0-0.33	BROWN TO GREY FINE TO COARSE SAND, GRAVEL, ROCKS
258	3.3	2.80	1.00	1.00	0.60	COARSE	0-0.33	BROWN FINE TO COARSE SAND WITH GRAVEL, TRACE OF WHITE HARD CRUMBLY MATERIAL
							0.00-0.10	GRAVEL, ROCKS
							0.10-0.60	BROWN FINE-COARSE SAND/GRAVEL, TRACE WHITE HARD MATERIAL
303	3.7	0.00	0.70	0.70	0.50	COARSE	0-0.33	BROWN MEDIUM TO COARSE SAND, GRAVEL, TRACE OF FINE SAND
							0.00-0.50	BROWN FINE TO COARSE SAND AND GRAVEL

ALLIED PAPER, INC./PORTAGE CREEK/KALAMAZOO RIVER SUPERFUND SITE
 TECHNICAL MEMORANDUM 10
 SUMMARY OF SEDIMENT CHARACTERIZATION FIELD OBSERVATIONS

TRANSECT: KPT119		Date Collected: 10/28/93		River Width (ft): 293.0		Distance to Right Edge of Water (ft): 10		
Distance From Right Bank (ft)	Water Depth (ft)	Water Velocity (fps)	Sediment Depth (ft)	Sediment Penetrated (ft)	Sediment Recovered (ft)	Sediment Type	Interval (ft)	Description
18	7.9	0.00	1.90	1.90	1.80	COARSE	0-0.33	BROWN FINE TO COARSE SAND
							0.00-1.80	BROWN FINE TO COARSE SAND
56	10.4	0.00	0.30	0.30	0.00	COARSE	0-0.33	NO SAMPLE RECOVERABLE
95	8.1	0.00	3.10	3.10	2.20	COARSE	0-0.33	BROWN FINE TO COARSE SAND
							0.00-2.20	BROWN FINE TO COARSE SAND
131	4.2	0.00	3.80	3.70	2.60	FINE	0-0.33	GREY/BROWN FINE SAND
							0.00-0.80	GREY/BROWN FINE SAND
							0.80-2.60	GREY FINE TO MEDIUM SAND
168	1.7	0.00	7.20	7.20	5.50	FINE	0-0.33	BROWN TO DARK BROWN FINE SAND
							0.00-2.90	BROWN TO DARK GREY FINE SAND
							2.90-5.50	GREY FINE TO MEDIUM SAND
205	1.8	0.00	9.50	9.50	4.00	FINE	0-0.33	BROWN FINE SAND AND SILT WITH ORGANIC MATTER
							0.00-0.80	BROWN FINE SAND AND SILT
							0.80-2.10	GREY TO TAN CLAYEY SILT
							2.10-2.60	DARK BROWN SILT, TRACE FINE SAND
							2.60-4.00	DARK BROWN FINE SAND

ALLIED PAPER, INC./PORTAGE CREEK/KALAMAZOO RIVER SUPERFUND SITE
 TECHNICAL MEMORANDUM 10
 SUMMARY OF SEDIMENT CHARACTERISATION FIELD OBSERVATIONS

TRANSECT: KPT119		Date Collected: 10/28/93		River Width (ft): 293.0		Distance to Right Edge of Water (ft): 10		
Distance From Right Bank (ft)	Water Depth (ft)	Water Velocity (fps)	Sediment Depth (ft)	Sediment Penetrated (ft)	Sediment Recovered (ft)	Sediment Type	Interval (ft)	Description
246	2.0	0.00	7.70	6.90	3.80	FINE	0-0.33	DARK GREY CLAY AND SILT WITH ORGANIC MATTER
							0.00-0.10	BROWN SILT
							0.10-1.30	BROWN TO GREY CLAYEY SILT
							1.30-2.40	DARK BROWN SILT, TRACE FINE SAND
							2.40-3.80	DARK GREY TO GREY FINE SAND
293	1.7	0.00	5.30	5.30	4.50	FINE	0-0.33	DARK BROWN SILT, TRACE CLAY
							0.00-1.00	DARK BROWN SILT, TRACE CLAY
							1.00-1.90	DARK GREY CLAYEY SILT
							1.90-4.50	LIGHT BROWN FINE SAND

ALLIED PAPER, INC./PORTAGE CREEK/KALAMAZOO RIVER SUPERFUND SITE
 TECHNICAL MEMORANDUM 10
 SUMMARY OF SEDIMENT CHARACTERIZATION FIELD OBSERVATIONS

TRANSECT: KPT120		Date Collected: 10/28/93		River Width (ft): 192.0		Distance to Right Edge of Water (ft): 9		
Distance From Right Bank (ft)	Water Depth (ft)	Water Velocity (fps)	Sediment Depth (ft)	Sediment Penetrated (ft)	Sediment Recovered (ft)	Sediment Type	Interval (ft)	Description
18	2.0	0.00	2.80	1.70	1.70	FINE	0-0.33	BROWN TO DARK BROWN FINE SAND, TRACE SILT
							0.00-1.70	BROWN TO DARK BROWN FINE SAND, TRACE SILT
46	10.0	0.00	0.30	0.00	0.00	COARSE	0-0.33	NO SAMPLE RECOVERED
76	7.5	0.00	1.40	1.40	1.30	COARSE	0-0.33	ORANGE/BROWN FINE TO COARSE SAND WITH GRAVEL
							0.00-0.50	ORANGE/BROWN FINE TO COARSE SAND WITH GRAVEL
							0.50-1.30	GREY FINE SAND WITH SILT
103	4.3	0.00	0.20	0.00	0.00	COARSE	0-0.33	BROWN FINE TO COARSE SAND, SOME GRAVEL
131	5.5	0.00	0.20	0.00	0.00	COARSE	0-0.33	NO RECOVERY FOR SAMPLE
162	7.1	0.00	1.20	1.20	0.70	COARSE	0-0.33	BROWN FINE TO COARSE SAND, GRAVEL
							0.00-0.70	BROWN FINE TO COARSE SAND, GRAVEL
193	2.8	0.00	1.40	1.40	1.30	FINE	0-0.33	BROWN FINE SAND, TRACE MEDIUM SAND
							0.00-1.30	BROWN FINE SAND, TRACE MEDIUM SAND

ALLIED PAPER, INC./PORTAGE CREEK/KALAMASOO RIVER SUPERFUND SITE
TECHNICAL MEMORANDUM 10
SUMMARY OF SEDIMENT CHARACTERIZATION FIELD OBSERVATIONS

TRANSECT: KPT121		Date Collected: 10/28/93		River Width (ft): 232.0		Distance to Right Edge of Water (ft): 14		
Distance From Right Bank (ft)	Water Depth (ft)	Water Velocity (fps)	Sediment Depth (ft)	Sediment Penetrated (ft)	Sediment Recovered (ft)	Sediment Type	Interval (ft)	Description
20	2.3	0.00	4.00	4.00	3.40	COARSE	0-0.33	BROWN TO GREY FINE TO COARSE SAND AND GRAVEL
							0.00-2.40	BROWN TO GREY FINE TO COARSE SAND AND GRAVEL
							2.40-3.40	BROWN FINE TO COARSE SAND AND GRAVEL
55	2.2	0.00	5.30	4.70	2.40	COARSE	0-0.33	BROWN FINE TO COARSE SAND WITH GRAVEL
							0.00-1.00	BROWN FINE TO COARSE SAND AND GRAVEL
							1.00-2.10	DARK GREY FINE TO MEDIUM SAND
							2.10-2.40	BROWN FINE TO COARSE SAND AND GRAVEL
90	4.2	0.00	2.70	2.50	1.50	COARSE	0-0.33	BROWN FINE TO COARSE SAND AND GRAVEL
							0.00-1.50	BROWN FINE TO COARSE SAND AND GRAVEL
125	5.3	0.00	0.80	0.60	0.00	COARSE	0-0.33	TAN FINE TO COARSE SAND, GRAVEL, ROCKS, AND WHITE HARD CRUMBLY MATERIAL
160	4.7	0.00	1.20	1.00	0.70	COARSE	0-0.33	GREY-BROWN FINE TO COARSE SAND, ROCKS, GRAVEL
							0.00-0.70	GREY-BROWN FINE TO COARSE SAND, GRAVEL, ROCKS
193	4.4	0.00	1.60	1.20	0.80	COARSE	0-0.33	GREY FINE TO COARSE SAND, GRAVEL, ROCKS
							0.00-0.80	GREY FINE TO COARSE SAND, GRAVEL, ROCKS
235	2.3	0.00	3.50	2.90	1.40	FINE	0-0.33	DARK BROWN SILT, SOME FINE SAND
							0.00-1.40	DARK BROWN SILT, SOME FINE SAND

ALLIED PAPER, INC./PORTAGE CREEK/KALAMAZOO RIVER SUPERFUND SITE
 TECHNICAL MEMORANDUM 10
 SUMMARY OF SEDIMENT CHARACTERIZATION FIELD OBSERVATIONS

TRANSECT: KPT122		Date Collected: 10/29/93		River Width (ft): 289.0		Distance to Right Edge of Water (ft): 15		
Distance From Right Bank (ft)	Water Depth (ft)	Water Velocity (fps)	Sediment Depth (ft)	Sediment Penetrated (ft)	Sediment Recovered (ft)	Sediment Type	Interval (ft)	Description
24	1.1	0.00	2.60	2.50	1.40	FINE	0-0.33	DARK BROWN SILT WITH ORGANIC MATTER
							0.00-0.40	DARK BROWN SILT
							0.40-0.80	GREY CLAYEY SILT
							0.80-1.40	DARK GREY TO BLACK SILT WITH ORGANIC MATTER
67	1.2	-0.10	11.00	11.00	7.20	FINE	0-0.33	DARK BROWN SILT, TRACE FINE SAND
							0.00-1.80	BROWN SILT, TRACE FINE SAND
							1.80-2.80	DARK BROWN CLAYEY SILT
							2.80-4.60	GREY FINE SAND
							4.60-5.60	DARK GREY FINE SAND, SILT, WOOD DEBRIS
							5.60-7.20	GREY FINE SAND
112	1.6	-0.20	10.10	10.10	3.80	FINE	0-0.33	DARK BROWN SILT, TRACE FINE SAND
							0.00-1.20	DARK BROWN SILT, TRACE FINE SAND
							1.20-1.90	BLACK CLAYEY SILT
							1.90-3.80	GREY/BROWN FINE TO MEDIUM SAND
159	3.7	0.56	5.30	5.30	3.50	FINE	0-0.33	BROWN FINE SAND AND SILT
							0.00-2.00	BROWN FINE SAND AND SILT
							2.00-3.50	DARK GREY FINE TO MEDIUM SAND
204	7.3	2.77	1.20	1.20	1.20	FINE	0-0.33	BROWN FINE SAND, TRACE MEDIUM SAND
							0.00-0.90	BROWN FINE SAND, TRACE MEDIUM SAND
							0.90-1.20	DARK GREY TO BLACK FINE TO MEDIUM SAND

ALLIED PAPER, INC./PORTAGE CREEK/KALAMAZOO RIVER SUPERFUND SITE
 TECHNICAL MEMORANDUM 10
 SUMMARY OF SEDIMENT CHARACTERIZATION FIELD OBSERVATIONS

TRANSECT: KPT122		Date Collected: 10/29/93		River Width (ft): 289.0		Distance to Right Edge of Water (ft): 15		
Distance From Right Bank (ft)	Water Depth (ft)	Water Velocity (fps)	Sediment Depth (ft)	Sediment Penetrated (ft)	Sediment Recovered (ft)	Sediment Type	Interval (ft)	Description
249	7.6	3.00	0.60	0.60	0.60	COARSE	0-0.33	BROWN FINE TO COARSE SAND, TRACE GRAVEL
							0.00-0.60	BROWN FINE TO COARSE SAND, TRACE GRAVEL
297	6.2	0.92	2.50	2.50	1.90	FINE	0-0.33	DARK GREY FINE SAND, SILT, CLAY
							0.00-0.20	BROWN FINE SAND
							0.20-0.60	DARK GREY FINE SAND, SILT, CLAY
							0.60-0.80	WOOD DEBRIS
							0.80-1.90	GREY FINE SAND

ALLIED PAPER, INC./PORTAGE CREEK/KALAMAZOO RIVER SUPERFUND SITE
TECHNICAL MEMORANDUM 10
SUMMARY OF SEDIMENT CHARACTERISATION FIELD OBSERVATIONS

TRANSECT: KPT123 Date Collected: 11/01/93 River Width (ft): 180.0 Distance to Right Edge of Water (ft): 9								
Distance From Right Bank (ft)	Water Depth (ft)	Water Velocity (fps)	Sediment Depth (ft)	Sediment Penetrated (ft)	Sediment Recovered (ft)	Sediment Type	Interval (ft)	Description
17	2.5	0.00	6.50	6.30	3.30	FINE	0-0.33	DARK BROWN SILT WITH FINE SAND
							0.00-2.60	DARK BROWN SILT WITH FINE SAND
							2.60-3.30	GREY FINE SAND WITH WOOD DEBRIS
48	6.6	0.00	2.00	1.90	0.70	COARSE	0-0.33	BROWN FINE TO COARSE SAND WITH GRAVEL
							0.00-0.70	BROWN FINE TO COARSE SAND WITH GRAVEL
77	6.0	0.00	2.00	2.00	1.00	COARSE	0-0.33	BROWN FINE TO COARSE SAND WITH GRAVEL
							0.00-1.00	BROWN FINE TO COARSE SAND WITH GRAVEL
107	5.6	0.00	1.80	1.80	1.60	COARSE	0-0.33	BROWN FINE TO COARSE SAND, GRAVEL, ROCKS
							0.00-1.60	BROWN FINE TO COARSE SAND, GRAVEL, ROCKS
138	5.8	0.00	3.70	3.80	2.50	FINE	0-0.33	BROWN FINE SAND
							0.00-0.30	BROWN FINE SAND
							0.30-1.50	DARK GREY TO BLACK FINE SAND
							1.50-2.50	BROWN FINE TO COARSE SAND
164	4.9	0.00	3.60	3.60	1.70	FINE	0-0.33	BROWN FINE SAND
							0.00-0.60	BROWN FINE SAND
							0.60-1.20	DARK GREY FINE SAND WITH SILT
							1.20-1.70	GREY FINE TO COARSE SAND, TRACE OF GRAVEL
179	2.1	0.00	2.90	3.10	2.30	FINE	0-0.33	DARK BROWN SILT, FINE SAND WITH ORGANICS
							0.00-1.50	DARK BROWN SILT AND FINE SAND
							1.50-2.30	DARK GREY FINE SAND

ALLIED PAPER, INC./PORTAGE CREEK/KALAMAZOO RIVER SUPERFUND SITE
TECHNICAL MEMORANDUM 10
SUMMARY OF SEDIMENT CHARACTERISATION FIELD OBSERVATIONS

TRANSECT: KPT124		Date Collected: 11/01/93		River Width (ft): 147.0		Distance to Right Edge of Water (ft): 7		
Distance From Right Bank (ft)	Water Depth (ft)	Water Velocity (fps)	Sediment Depth (ft)	Sediment Penetrated (ft)	Sediment Recovered (ft)	Sediment Type	Interval (ft)	Description
18	4.7	0.00	3.00	2.80	2.40	FINE	0-0.33	BROWN FINE SAND, TRACE OF MEDIUM SAND
							0.00-2.40	BROWN FINE SAND, TRACE OF MEDIUM SAND
39	6.6	0.00	1.70	1.70	1.70	FINE	0-0.33	BROWN FINE TO MEDIUM SAND, TRACE COARSE SAND
							0.00-1.30	BROWN FINE TO MEDIUM SAND, TRACE OF COARSE SAND
							1.30-1.70	GREY FINE SAND, TRACE GRAVEL/WHITE HARD CRUMBLY MATERIAL
60	8.4	0.00	8.90	8.90	8.20	FINE	0-0.33	LIGHT BROWN FINE SAND
							0.00-8.20	LIGHT BROWN TO BROWN FINE SAND
79	9.3	0.00	4.70	4.70	4.50	FINE	0-0.33	BROWN FINE SAND
							0.00-4.50	BROWN FINE SAND
102	10.4	0.00	3.80	2.40	1.70	COARSE	0-0.33	BROWN FINE TO COARSE SAND
							0.00-1.10	BROWN TO DARK BROWN FINE TO COARSE SAND
							1.10-1.70	DARK GREY FINE SAND
126	9.0	0.00	10.20	10.20	7.70	FINE	0-0.33	BROWN FINE SAND, TRACE COARSE SAND AND GRAVEL
							0.00-0.40	BROWN FINE SAND, TRACE COARSE SAND AND GRAVEL
							0.40-7.70	LIGHT BROWN FINE SAND
144	2.2	0.00	10.30	10.30	9.40	FINE	0-0.33	DARK BROWN FINE SAND AND SILT
							0.00-1.20	DARK BROWN FINE SAND AND SILT
							1.20-9.40	LIGHT BROWN FINE SAND

ALLIED PAPER, INC./PORTAGE CREEK/KALAMAZOO RIVER SUPERFUND SITE
TECHNICAL MEMORANDUM 10
SUMMARY OF SEDIMENT CHARACTERIZATION FIELD OBSERVATIONS

TRANSECT: KPT125		Date Collected: 11/02/93		River Width (ft): 265.0		Distance to Right Edge of Water (ft): 34		
Distance From Right Bank (ft)	Water Depth (ft)	Water Velocity (fps)	Sediment Depth (ft)	Sediment Penetrated (ft)	Sediment Recovered (ft)	Sediment Type	Interval (ft)	Description
44	1.0	0.00	4.60	4.50	2.80	FINE	0-0.33	DARK BROWN SILT, TRACE FINE SAND, ORGANIC MATTER
							0.00-1.50	DARK BROWN SILT, TRACE FINE SAND
							1.50-2.80	BROWN FINE SAND
78	3.7	0.00	9.60	9.60	5.40	FINE	0-0.33	DARK BROWN SILT, TRACE FINE SAND
							0.00-3.10	DARK BROWN SILT, TRACE FINE SAND
							3.10-5.40	GREY TO BROWN FINE SAND
112	6.0	0.00	4.40	4.40	3.10	FINE	0-0.33	DARK BROWN/DARK GREY SILT WITH FINE SAND
							0.00-0.10	BROWN FINE SAND
							0.10-1.30	DARK BROWN/DARK GREY SILT, TRACE FINE SAND
							1.30-1.50	WOOD DEBRIS
							1.50-3.10	DARK GREY FINE SAND
147	6.4	0.00	3.60	3.60	2.40	FINE	0-0.33	BROWN TO GREY FINE SAND
							0.00-2.40	BROWN TO GREY FINE SAND
185	5.5	0.00	3.30	3.30	2.40	FINE	0-0.33	BROWN FINE SAND
							0.00-2.40	BROWN FINE SAND
220	5.2	0.00	4.00	4.00	3.00	FINE	0-0.33	BROWN FINE TO MEDIUM SAND
							0.00-3.00	BROWN FINE TO MEDIUM SAND
253	4.4	0.00	3.90	3.60	2.80	FINE	0-0.33	BROWN FINE TO MEDIUM SAND, TRACE COARSE SAND
							0.00-2.80	BROWN FINE TO MEDIUM SAND, TRACE COARSE SAND

ALLIED PAPER, INC./PORTAGE CREEK/KALAMAZOO RIVER SUPERFUND SITE
 TECHNICAL MEMORANDUM 10
 SUMMARY OF SEDIMENT CHARACTERIZATION FIELD OBSERVATIONS

TRANSECT: KPT125		Date Collected: 11/02/93		River Width (ft): 265.0		Distance to Right Edge of Water (ft): 34		
Distance From Right Bank (ft)	Water Depth (ft)	Water Velocity (fps)	Sediment Depth (ft)	Sediment Penetrated (ft)	Sediment Recovered (ft)	Sediment Type	Interval (ft)	Description
282	1.3	0.00	5.00	4.80	2.10	FINE	0-0.33	DARK BROWN SILT WITH SOME FINE SAND
							0.00-1.40	DARK BROWN SILT, SOME FINE SAND
							1.40-2.10	BROWN SILT AND FINE SAND

ALLIED PAPER, INC./PORTAGE CREEK/KALAMAZOO RIVER SUPERFUND SITE
TECHNICAL MEMORANDUM 10
SUMMARY OF SEDIMENT CHARACTERIZATION FIELD OBSERVATIONS

TRANSECT: KPT126		Date Collected: 11/02/93		River Width (ft): 240.0		Distance to Right Edge of Water (ft): 46		
Distance From Right Bank (ft)	Water Depth (ft)	Water Velocity (fps)	Sediment Depth (ft)	Sediment Penetrated (ft)	Sediment Recovered (ft)	Sediment Type	Interval (ft)	Description
57	3.1	0.94	1.90	1.80	1.20	COARSE	0-0.33	BROWN MEDIUM TO COARSE SAND, GRAVEL, ROCKS, TRACE OF FINE SAND
							0.00-1.20	BROWN FINE TO COARSE SAND, GRAVEL, ROCKS
88	5.7	2.15	4.80	4.80	4.40	COARSE	0-0.33	BROWN FINE SAND, GRAVEL, ROCKS
							0.00-0.50	BROWN FINE SAND, GRAVEL, ROCKS
							0.50-4.40	BROWN FINE SAND
120	6.1	2.25	1.70	1.20	0.80	COARSE	0-0.33	BROWN FINE SAND (TRACE MEDIUM-COARSE), WHITE HARD CRUMBLY MATERIAL, GRAVEL
							0.00-0.80	BROWN FINE SAND
151	5.7	2.40	2.30	2.20	1.30	FINE	0-0.33	BROWN FINE TO MEDIUM SAND
							0.00-1.30	BROWN FINE TO MEDIUM SAND
183	4.7	2.15	2.70	2.50	1.60	FINE	0-0.33	BROWN FINE TO MEDIUM SAND
							0.00-1.60	BROWN FINE TO MEDIUM SAND
213	0.6	0.65	5.30	5.30	3.20	FINE	0-0.33	BROWN TO DARK BROWN FINE TO MEDIUM SAND AND SILT
							0.00-1.80	BROWN TO DARK BROWN FINE TO MEDIUM SAND AND SILT
							1.80-2.30	GREY SILT AND CLAY
							2.30-3.20	BROWN FINE TO MEDIUM SAND
245	1.3	1.00	3.80	3.70	3.10	COARSE	0-0.33	BROWN FINE TO COARSE SAND
							0.00-1.50	BROWN FINE TO COARSE SAND
							1.50-1.80	GREY SILT AND CLAY
							1.80-3.10	BROWN TO GREY FINE SAND, TRACE OF SILT AND WOOD DEBRIS

ALLIED PAPER, INC./PORTAGE CREEK/KALAMAZOO RIVER SUPERFUND SITE
 TECHNICAL MEMORANDUM 10
 SUMMARY OF SEDIMENT CHARACTERIZATION FIELD OBSERVATIONS

TRANSECT: KPT126		Date Collected: 11/02/93		River Width (ft): 240.0		Distance to Right Edge of Water (ft): 46		
Distance From Right Bank (ft)	Water Depth (ft)	Water Velocity (fps)	Sediment Depth (ft)	Sediment Penetrated (ft)	Sediment Recovered (ft)	Sediment Type	Interval (ft)	Description
273	0.5	0.25	3.80	3.80	2.70	FINE	0-0.33	DARK BROWN SILT
							0.00-0.80	DARK BROWN SILT
							0.80-1.30	GREY SILT AND CLAY
							1.30-1.40	WOOD
							1.40-2.70	BROWN FINE SAND WITH SILT

ALLIED PAPER, INC./PORTAGE CREEK/KALAMAZOO RIVER SUPERFUND SITE
TECHNICAL MEMORANDUM 10
SUMMARY OF SEDIMENT CHARACTERISATION FIELD OBSERVATIONS

TRANSECT: KPT127		Date Collected: 11/02/93		River Width (ft): 227.0		Distance to Right Edge of Water (ft): 23		
Distance From Right Bank (ft)	Water Depth (ft)	Water Velocity (fps)	Sediment Depth (ft)	Sediment Penetrated (ft)	Sediment Recovered (ft)	Sediment Type	Interval (ft)	Description
34	3.4	0.00	3.40	1.20	0.70	COARSE	0-0.33	DARK GREY FINE TO COARSE SAND, GRAVEL, SOME SILT
							0.00-0.70	DARK GREY FINE TO COARSE SAND, GRAVEL, SOME SILT
64	5.4	0.00	0.60	0.60	0.60	FINE	0-0.33	BROWN FINE TO MEDIUM SAND
							0.00-0.40	BROWN FINE TO MEDIUM SAND
							0.40-0.60	DARK BROWN FINE TO COARSE SAND
92	4.9	0.00	1.10	1.10	0.80	FINE	0-0.33	BROWN FINE TO MEDIUM SAND
							0.00-0.80	BROWN FINE TO MEDIUM SAND
122	4.8	0.00	2.20	2.20	1.90	FINE	0-0.33	BROWN FINE SAND, TRACE OF MEDIUM SAND
							0.00-1.50	BROWN FINE SAND, TRACE OF MEDIUM SAND
							1.50-1.90	GREY FINE SAND AND WHITE HARD CRUMBLY MATERIAL
153	4.9	0.00	3.10	3.00	2.30	FINE	0-0.33	BROWN FINE TO MEDIUM SAND, TRACE OF COARSE SAND
							0.00-1.90	BROWN FINE TO MEDIUM SAND, TRACE OF COARSE SAND
							1.90-2.30	GREY FINE SAND WITH WHITE HARD CRUMBLY MATERIAL
183	5.0	0.00	2.20	1.80	1.60	FINE	0-0.33	BROWN FINE TO MEDIUM SAND, TRACE OF COARSE SAND
							0.00-1.60	BROWN FINE TO MEDIUM SAND, TRACE OF COARSE SAND
214	5.5	0.00	1.50	0.80	0.50	FINE	0-0.33	BROWN FINE TO MEDIUM SAND
							0.00-0.50	BROWN FINE TO MEDIUM SAND

ALLIED PAPER, INC./PORTAGE CREEK/KALAMAZOO RIVER SUPERFUND SITE
 TECHNICAL MEMORANDUM 10
 SUMMARY OF SEDIMENT CHARACTERIZATION FIELD OBSERVATIONS

TRANSECT: KPT127		Date Collected: 11/02/93		River Width (ft): 227.0		Distance to Right Edge of Water (ft): 23		
Distance From Right Bank (ft)	Water Depth (ft)	Water Velocity (fps)	Sediment Depth (ft)	Sediment Penetrated (ft)	Sediment Recovered (ft)	Sediment Type	Interval (ft)	Description
242	2.9	0.00	5.30	3.70	2.20	FINE	0-0.33	DARK BROWN FINE SAND AND SILT, TRACE OF MEDIUM TO COARSE SAND
							0.00-0.60	DARK BROWN FINE SAND & SILT, TRACE MEDIUM TO COARSE SAND
							0.60-1.10	BROWN FINE SAND AND SILT
							1.10-2.20	LIGHT BROWN FINE SAND

ALLIED PAPER, INC./PORTAGE CREEK/KALAMAZOO RIVER SUPERFUND SITE
TECHNICAL MEMORANDUM 10
SUMMARY OF SEDIMENT CHARACTERIZATION FIELD OBSERVATIONS

TRANSECT: KPT128		Date Collected: 11/03/93		River Width (ft): 170.0		Distance to Right Edge of Water (ft): 30		
Distance From Right Bank (ft)	Water Depth (ft)	Water Velocity (fps)	Sediment Depth (ft)	Sediment Penetrated (ft)	Sediment Recovered (ft)	Sediment Type	Interval (ft)	Description
30	0.0	0.00	7.10	7.10	4.30	FINE	0-0.33	DARK BROWN SILT AND FINE SAND
							0.00-0.80	DARK BROWN SILT AND FINE SAND
							0.80-1.60	DARK GREY SILT, TRACE FINE SAND AND CLAY
							1.60-4.30	GREY TO DARK GREY FINE TO MEDIUM SAND
55	4.1	0.00	3.40	3.30	2.90	FINE	0-0.33	BROWN FINE SAND
							0.00-1.60	BROWN FINE SAND, TRACE MEDIUM SAND
							1.60-2.90	DARK GREY FINE TO MEDIUM SAND, TRACE COARSE SAND
81	6.1	0.00	1.80	1.70	1.00	FINE	0-0.33	BROWN FINE SAND, TRACE MEDIUM SAND
							0.00-1.00	BROWN FINE SAND, TRACE MEDIUM SAND
109	7.0	0.00	1.00	1.00	0.90	FINE	0-0.33	BROWN FINE TO MEDIUM SAND
							0.00-0.90	BROWN FINE TO MEDIUM SAND
136	7.4	0.00	0.70	0.00	0.00	COARSE	0-0.33	BROWN FINE TO COARSE SAND, GRAVEL, ROCKS
161	7.0	0.00	2.00	1.20	0.80	COARSE	0-0.33	BROWN FINE TO COARSE SAND, GRAVEL, ROCKS
							0.00-0.80	BROWN FINE TO COARSE SAND, GRAVEL, ROCKS
191	1.4	0.00	3.90	3.90	1.70	COARSE	0-0.33	BROWN FINE TO COARSE SAND, GRAVEL, ROCKS (NEAR DRAINAGE PIPE, RT 89 RUNOFF)
							0.00-0.20	BROWN FINE TO COARSE SAND, GRAVEL, ROCKS
							0.20-1.70	BROWN FINE TO MEDIUM SAND

ALLIED PAPER, INC./PORTAGE CREEK/KALAMASOO RIVER SUPERFUND SITE
 TECHNICAL MEMORANDUM 10
 SUMMARY OF SEDIMENT CHARACTERIZATION FIELD OBSERVATIONS

TRANSECT: KPT129		Date Collected: 11/03/93		River Width (ft): 55.0		Distance to Right Edge of Water (ft): 0		
Distance From Right Bank (ft)	Water Depth (ft)	Water Velocity (fps)	Sediment Depth (ft)	Sediment Penetrated (ft)	Sediment Recovered (ft)	Sediment Type	Interval (ft)	Description
30	0.5	0.00	6.50	6.50	2.30	FINE	0-0.33	DARK BROWN SILT, SOME FINE SAND
							0.00-0.50	DARK BROWN SILT, SOME FINE SAND
							0.50-1.20	DARK GREY SILT AND CLAY
							1.20-2.30	BROWN TO GREY FINE TO MEDIUM SAND
63	0.3	0.00	8.60	8.60	4.30	FINE	0-0.33	DARK BROWN SILT, TRACE CLAY
							0.00-0.70	DARK BROWN SILT, TRACE CLAY
							0.70-1.70	DARK GREY SILT AND CLAY
							1.70-1.80	WOOD DEBRIS
							1.80-4.30	GREY FINE SAND
194	0.0	0.00	0.80	7.90	4.30	FINE	0-0.33	BROWN SILT, TRACE FINE SAND AND ORGANIC MATTER
							0.00-1.10	BROWN SILT, TRACE FINE SAND AND ORGANIC MATTER
							1.10-4.30	DARK GREY FINE SAND, TRACE MEDIUM SAND
237	5.0	0.00	2.70	2.60	1.90	FINE	0-0.33	LIGHT BROWN FINE SAND
							0.00-1.90	LIGHT BROWN TO GREY FINE SAND
265	6.0	0.00	1.80	1.80	1.80	FINE	0-0.33	LIGHT BROWN FINE SAND
							0.00-0.80	LIGHT BROWN FINE SAND
							0.80-1.80	GREY/BROWN FINE TO MEDIUM SAND
299	6.9	0.00	0.80	0.80	0.80	COARSE	0-0.33	BROWN FINE TO COARSE SAND
							0.00-0.80	BROWN FINE TO COARSE SAND
332	7.3	0.00	0.30	0.30	0.00	COARSE	0-0.33	BROWN FINE TO COARSE SAND WITH GRAVEL, ROCKS

ALLIED PAPER, INC./PORTAGE CREEK/KALAMAZOO RIVER SUPERFUND SITE
 TECHNICAL MEMORANDUM 10
 SUMMARY OF SEDIMENT CHARACTERIZATION FIELD OBSERVATIONS

TRANSECT: KPT129		Date Collected: 11/03/93		River Width (ft): 170.0		Distance to Right Edge of Water (ft): 0		
Distance From Right Bank (ft)	Water Depth (ft)	Water Velocity (fps)	Sediment Depth (ft)	Sediment Penetrated (ft)	Sediment Recovered (ft)	Sediment Type	Interval (ft)	Description
363	3.9	0.00	2.90	2.10	1.40	FINE	0-0.33	DARK BROWN FINE SAND, TRACE SILT, ROCKS
							0.00-0.30	DARK BROWN FINE SAND, TRACE SILT
							0.30-1.40	BROWN TO DARK BROWN FINE SAND

ALLIED PAPER, INC./PORTAGE CREEK/KALAMAZOO RIVER SUPERFUND SITE
TECHNICAL MEMORANDUM 10
SUMMARY OF SEDIMENT CHARACTERIZATION FIELD OBSERVATIONS

TRANSECT: KPT130		Date Collected: 11/03/93		River Width (ft): 317.0		Distance to Right Edge of Water (ft): 31		
Distance From Right Bank (ft)	Water Depth (ft)	Water Velocity (fps)	Sediment Depth (ft)	Sediment Penetrated (ft)	Sediment Recovered (ft)	Sediment Type	Interval (ft)	Description
40	2.8	1.15	6.50	6.50	4.10	FINE	0-0.33	DARK BROWN FINE SAND, TRACE OF SILT
							0.00-1.00	DARK BROWN FINE SAND, TRACE SILT
							1.00-1.60	TAN TO GREY FINE SAND, SOME SILT
							1.60-3.50	ORANGE TO TAN FINE SAND
							3.50-4.10	ORANGE TO TAN COARSE SAND, GRAVEL, ROCKS
80	3.4	1.20	6.00	6.00	4.40	FINE	0-0.33	BROWN FINE SAND
							0.00-0.50	BROWN FINE SAND
							0.50-2.30	DARK BROWN FINE SAND, TRACE SILT
							2.30-4.40	GREY TO DARK GREY FINE TO MEDIUM SAND
122	4.3	1.55	6.00	6.00	3.40	FINE	0-0.33	BROWN FINE SAND
							0.00-3.40	BROWN TO GREY FINE SAND
166	4.3	1.70	6.40	6.40	5.30	FINE	0-0.33	BROWN FINE SAND
							0.00-5.30	BROWN TO GREY FINE SAND
210	3.9	1.80	6.50	6.50	4.70	FINE	0-0.33	BROWN FINE TO MEDIUM SAND
							0.00-4.70	BROWN TO GREY FINE TO MEDIUM SAND
255	3.0	1.75	5.70	5.70	4.10	COARSE	0-0.33	BROWN FINE TO COARSE SAND WITH GRAVEL
							0.00-4.10	BROWN TO GREY FINE TO COARSE SAND, TRACE GRAVEL
297	2.2	1.30	6.70	6.70	4.70	COARSE	0-0.33	BROWN FINE TO COARSE SAND, TRACE SILT
							0.00-0.80	BROWN FINE TO COARSE SAND, TRACE SILT
							0.80-4.70	GREY TO DARK GREY FINE TO COARSE SAND

ALLIED PAPER, INC./PORTAGE CREEK/KALAMAZOO RIVER SUPERFUND SITE
 TECHNICAL MEMORANDUM 10
 SUMMARY OF SEDIMENT CHARACTERIZATION FIELD OBSERVATIONS

TRANSECT: KPT130		Date Collected: 11/03/93		River Width (ft): 317.0		Distance to Right Edge of Water (ft): 31		
Distance From Right Bank (ft)	Water Depth (ft)	Water Velocity (fps)	Sediment Depth (ft)	Sediment Penetrated (ft)	Sediment Recovered (ft)	Sediment Type	Interval (ft)	Description
336	1.1	0.15	6.20	6.20	3.40	FINE	0-0.33	DARK BROWN SILT AND SOME CLAY
							0.00-1.00	DARK BROWN SILT AND SOME CLAY
							1.00-1.80	DARK GREY SILT AND CLAY
							1.80-3.40	DARK BROWN FINE SAND WITH SILT

ALLIED PAPER, INC./PORTAGE CREEK/KALAMAZOO RIVER SUPERFUND SITE
TECHNICAL MEMORANDUM 10
SUMMARY OF SEDIMENT CHARACTERISATION FIELD OBSERVATIONS

TRANSECT: KPT131		Date Collected: 11/04/93		River Width (ft): 250.0		Distance to Right Edge of Water (ft): 30		
Distance From Right Bank (ft)	Water Depth (ft)	Water Velocity (fps)	Sediment Depth (ft)	Sediment Penetrated (ft)	Sediment Recovered (ft)	Sediment Type	Interval (ft)	Description
29	0.1	0.00	9.50	9.50	4.40	FINE	0-0.33	DARK BROWN FINE SAND AND SILT
							0.00-0.70	DARK BROWN FINE SAND AND SILT
							0.70-1.50	DARK BROWN SILT WITH CLAY
							1.50-1.90	DARK GREY SILT WITH CLAY
							1.90-2.60	DARK BROWN SILT AND FINE SAND
							2.60-4.40	DARK GREY FINE SAND, TRACE MEDIUM SAND
77	4.8	0.00	5.50	5.50	4.00	FINE	0-0.33	LIGHT BROWN FINE SAND
							0.00-1.50	LIGHT BROWN TO GREY FINE SAND
							1.50-4.00	GREY FINE TO MEDIUM SAND
125	4.2	0.00	7.20	7.20	6.30	FINE	0-0.33	BROWN FINE SAND, TRACE MEDIUM SAND
							0.00-6.30	BROWN TO GREY FINE SAND, TRACE MEDIUM AND COARSE SAND
173	3.2	0.00	8.20	8.20	7.10	COARSE	0-0.33	BROWN FINE TO MEDIUM SAND, TRACE COARSE SAND
							0.00-7.10	BROWN TO GREY FINE TO MEDIUM SAND, TRACE COARSE SAND
223	5.6	0.00	5.20	5.20	4.00	COARSE	0-0.33	BROWN FINE TO COARSE SAND
							0.00-1.40	BROWN FINE TO COARSE SAND
							1.40-2.00	DARK GREY FINE SAND, TRACE MEDIUM SAND
							2.00-4.00	BROWN TO GREY FINE TO MEDIUM SAND, TRACE COARSE SAND
268	3.1	0.00	1.10	1.10	0.45	COARSE	0-0.33	BROWN FINE TO COARSE SAND, GRAVEL, ROCKS
							0.00-0.45	BROWN FINE TO COARSE SAND, GRAVEL, ROCKS

ALLIED PAPER, INC./PORTAGE CREEK/KALAMAZOO RIVER SUPERFUND SITE
 TECHNICAL MEMORANDUM 10
 SUMMARY OF SEDIMENT CHARACTERIZATION FIELD OBSERVATIONS

TRANSECT: KPT132		Date Collected: 11/04/93		River Width (ft): 185.0		Distance to Right Edge of Water (ft): 94		
Distance From Right Bank (ft)	Water Depth (ft)	Water Velocity (fps)	Sediment Depth (ft)	Sediment Penetrated (ft)	Sediment Recovered (ft)	Sediment Type	Interval (ft)	Description
105	4.3	0.00	9.70	4.20	3.60	COARSE	0-0.33	LIGHT BROWN FINE SAND, TRACE OF MEDIUM AND COARSE SAND
							0.00-3.60	LIGHT BROWN FINE SAND, TRACE OF MEDIUM AND COARSE SAND
131	11.0	0.00	0.70	0.70	0.70	COARSE	0-0.33	BROWN FINE TO COARSE SAND WITH GRAVEL
							0.00-0.70	BROWN FINE TO COARSE SAND WITH GRAVEL
159	13.5	0.00	0.70	0.70	0.00	COARSE	0-0.33	BROWN FINE TO COARSE SAND, GRAVEL AND WHITE HARD CRUMBLY MATERIAL
187	12.6	0.00	3.60	3.60	2.90	FINE	0-0.33	BROWN FINE SAND, TRACE OF MEDIUM SAND
							0.00-2.90	BROWN FINE SAND, TRACE OF MEDIUM SAND
214	5.6	0.00	9.50	9.50	6.40	FINE	0-0.33	BROWN FINE SAND, TRACE OF MEDIUM SAND
							0.00-6.40	BROWN FINE SAND, TRACE OF MEDIUM SAND
241	3.0	0.00	10.30	10.30	7.70	FINE	0-0.33	BROWN TO GREY FINE TO MEDIUM SAND
							0.00-7.00	BROWN TO GREY FINE TO MEDIUM SAND
							7.00-7.70	BROWN TO GREY FINE TO COARSE SAND
269	1.9	0.00	9.10	8.00	6.90	FINE	0-0.33	BROWN TO GREY FINE TO MEDIUM SAND
							0.00-5.60	BROWN TO GREY FINE TO MEDIUM SAND
							5.60-6.90	DARK BROWN TO GREY FINE SAND WITH SILT

ALLIED PAPER, INC./PORTAGE CREEK/KALAMAZOO RIVER SUPERFUND SITE
TECHNICAL MEMORANDUM 10
SUMMARY OF SEDIMENT CHARACTERIZATION FIELD OBSERVATIONS

TRANSECT: KPT139		Date Collected: 11/05/93		River Width (ft): 584.0		Distance to Right Edge of Water (ft): 4		
Distance From Right Bank (ft)	Water Depth (ft)	Water Velocity (fps)	Sediment Depth (ft)	Sediment Penetrated (ft)	Sediment Recovered (ft)	Sediment Type	Interval (ft)	Description
20	3.6	0.00	8.60	8.60	3.60	FINE	0-0.33	DARK BROWN SILT AND FINE SAND, TRACE COARSE SAND
							0.00-1.00	DARK BROWN SILT AND FINE SAND, TRACE COARSE SAND
							1.00-1.50	DARK GREY SILT AND CLAY
							1.50-3.60	BROWN FINE SAND, TRACE MEDIUM SAND
100	4.8	0.00	10.00	10.00	5.10	FINE	0-0.33	DARK BROWN SILT, TRACE FINE SAND
							0.00-1.80	DARK BROWN SILT, TRACE FINE SAND
							1.80-4.30	DARK GREY SILT WITH CLAY
							4.30-5.10	DARK BROWN FINE SAND
181	3.2	0.00	10.70	10.70	6.30	FINE	0-0.33	BROWN FINE TO MEDIUM SAND
							0.00-1.00	BROWN FINE TO MEDIUM SAND
							1.00-3.00	DARK GREY SILT AND CLAY
							3.00-6.30	DARK GREY FINE SAND, TRACE MEDIUM SAND
260	2.1	0.00	2.90	2.70	2.00	FINE	0-0.33	DARK GREY FINE TO MEDIUM SAND
							0.00-0.50	DARK GREY FINE TO MEDIUM SAND
							0.50-1.60	BROWN SILT, TRACE FINE SAND
							1.60-2.00	DARK GREY SILT AND CLAY
340	1.8	0.00	4.70	4.70	3.20	FINE	0-0.33	DARK BROWN FINE SAND AND SILT
							0.00-1.10	DARK BROWN FINE SAND AND SILT
							1.10-1.70	BROWN SILT, TRACE FINE SAND
							1.70-3.20	DARK GREY FINE SAND

ALLIED PAPER, INC./PORTAGE CREEK/KALAMAZOO RIVER SUPERFUND SITE
 TECHNICAL MEMORANDUM 10
 SUMMARY OF SEDIMENT CHARACTERIZATION FIELD OBSERVATIONS

TRANSECT: KPT139		Date Collected: 11/05/93		River Width (ft): 584.0		Distance to Right Edge of Water (ft): 4		
Distance From Right Bank (ft)	Water Depth (ft)	Water Velocity (fps)	Sediment Depth (ft)	Sediment Penetrated (ft)	Sediment Recovered (ft)	Sediment Type	Interval (ft)	Description
425	5.8	0.00	5.90	5.90	5.30	FINE	0-0.33	BROWN TO GREY FINE SAND AND SILT
							0.00-0.80	BROWN TO GREY FINE SAND AND SILT
							0.80-1.40	GREY VERY FINE SAND WITH SILT
							1.40-5.30	GREY TO ORANGE FINE SAND
500	0.0	0.00	8.00	3.50	1.50	FINE	0-0.33	BROWN FINE SAND WITH ORGANIC MATTER
							0.00-1.50	BROWN FINE SAND WITH ORGANIC MATTER
577	0.0	0.00	8.10	8.10	4.20	FINE	0-0.33	BROWN FINE SAND WITH ORGANIC MATTER
							0.00-1.00	BROWN FINE SAND WITH ORGANICS
							1.00-2.40	DARK GREY SILT AND CLAY
							2.40-3.20	BROWN TO BLACK FINE SAND
							3.20-4.20	BROWN TO GREY SILT AND FINE SAND

ALLIED PAPER, INC./PORTAGE CREEK/KALAMAZOO RIVER SUPERFUND SITE
TECHNICAL MEMORANDUM 10
SUMMARY OF SEDIMENT CHARACTERIZATION FIELD OBSERVATIONS

TRANSECT: KPT140		Date Collected: 11/09/93		River Width (ft): 167.0		Distance to Right Edge of Water (ft): 13		
Distance From Right Bank (ft)	Water Depth (ft)	Water Velocity (fps)	Sediment Depth (ft)	Sediment Penetrated (ft)	Sediment Recovered (ft)	Sediment Type	Interval (ft)	Description
21	5.1	0.00	4.50	4.50	2.60	FINE	0-0.33	GREY/BROWN FINE SAND
							0.00-0.60	GREY-BROWN FINE SAND
							0.60-1.80	DARK BROWN FINE SAND AND SILT
							1.80-2.00	WOOD
							2.00-2.60	GREY FINE TO COARSE SAND
56	9.9	0.00	0.00	0.00	0.00	COARSE	0-0.33	NO SAMPLE OBTAINED
86	7.6	0.00	2.80	2.80	1.40	COARSE	0-0.33	DARK GREY FINE/COARSE SAND, GRAVEL, AND WOOD
							0.00-0.30	DARK GREY FINE/COARSE SAND, GRAVEL, WOOD
							0.30-1.40	GREY TO DARK GREY FINE/COARSE SAND
119	6.0	0.00	2.80	2.60	1.80	COARSE	0-0.33	LIGHT BROWN FINE SAND, TRACE MEDIUM/COARSE SAND AND GRAVEL
							0.00-0.50	LIGHT BROWN FINE SAND, TRACE MEDIUM/COARSE SAND & GRAVEL
							0.50-1.80	BROWN/GREY FINE/COARSE SAND AND GRAVEL
149	1.8	0.00	6.40	6.20	5.00	COARSE	0-0.33	LIGHT BROWN FINE SAND, TRACE MEDIUM/COARSE SAND
							0.00-1.90	LIGHT BROWN FINE SAND WITH TRACE MEDIUM/COARSE SAND
							1.90-2.40	TAN/GREY FINE SAND WITH SOME CLAY
							2.40-3.70	GREY/BLACK CLAYEY SILT
							3.70-5.00	GREY FINE SAND WITH TRACE MEDIUM SAND

ALLIED PAPER, INC./PORTAGE CREEK/KALAMAZOO RIVER SUPERFUND SITE
 TECHNICAL MEMORANDUM 10
 SUMMARY OF SEDIMENT CHARACTERIZATION FIELD OBSERVATIONS

TRANSECT: RPT140		Date Collected: 11/09/93		River Width (ft): 167.0		Distance to Right Edge of Water (ft): 13		
Distance From Right Bank (ft)	Water Depth (ft)	Water Velocity (fps)	Sediment Depth (ft)	Sediment Penetrated (ft)	Sediment Recovered (ft)	Sediment Type	Interval (ft)	Description
170	0.8	0.00	8.20	8.00	4.70	FINE	0-0.33	DARK BROWN FINE SAND AND SILT WITH ORGANIC MATTER
							0.00-0.50	DARK BROWN FINE SAND AND SILT WITH ORGANIC MATTER
							0.50-1.30	GREY CLAYEY SAND
							1.30-2.00	DARK GREY CLAYEY SILT
							2.00-4.70	GREY/DARK GREY FINE SAND WITH TRACE MEDIUM SAND

ALLIED PAPER, INC./PORTAGE CREEK/KALAMAZOO RIVER SUPERFUND SITE
 TECHNICAL MEMORANDUM 10
 SUMMARY OF SEDIMENT CHARACTERIZATION FIELD OBSERVATIONS

TRANSECT: KPT147		Date Collected: 02/04/94		River Width (ft): 860.0		Distance to Right Edge of Water (ft): 0		
Distance From Right Bank (ft)	Water Depth (ft)	Water Velocity (fps)	Sediment Depth (ft)	Sediment Penetrated (ft)	Sediment Recovered (ft)	Sediment Type	Interval (ft)	Description
51	1.0	0.00	4.00	4.00	2.20	FINE	0-0.33	DARK GREY/BROWN FINE SAND, SOME SILT, SOME ORGANIC MATTER
							0.00-0.90	DARK GREY/BROWN FINE SAND, SOME SILT, ORGANIC MATTER
							0.90-2.00	DARK GREY/BROWN FINE SANDY SILT
							2.00-2.20	BROWN FINE SAND
136	1.4	0.00	5.60	4.40	2.80	FINE	0-0.33	DARK GREY/BROWN SILTY FINE SAND
							0.00-1.20	DARK GREY/BROWN SILTY FINE SAND
							1.20-2.50	GREY FINE, VERY FINE SAND
							2.50-2.80	BROWN FINE, VERY FINE SAND
222	3.0	0.00	6.70	6.70	4.00	FINE	0-0.33	BROWN FINE SAND WITH TRACE SILT, SOME ORGANIC MATTER
							0.00-1.00	BROWN FINE SAND, TRACE SILT, ORGANIC MATTER
							1.00-3.60	GREY/BROWN FINE SANDY SILT
							3.60-4.00	BROWN FINE TO MEDIUM SAND
306	6.8	0.00	7.20	7.20	3.70	FINE	0-0.33	DARK GREY SILT
							0.00-0.40	DARK GREY SILT
							0.40-1.60	GREY FINE SANDY SILT
							1.60-3.20	GREY/BROWN FINE TO COARSE SAND
							3.20-3.70	GREY/BROWN FINE TO COARSE SAND WITH GRAVEL

ALLIED PAPER, INC./PORTAGE CREEK/KALAMAZOO RIVER SUPERFUND SITE
 TECHNICAL MEMORANDUM 10
 SUMMARY OF SEDIMENT CHARACTERIZATION FIELD OBSERVATIONS

TRANSECT: KPT147		Date Collected: 02/04/94		River Width (ft): 860.0		Distance to Right Edge of Water (ft): 0		
Distance From Right Bank (ft)	Water Depth (ft)	Water Velocity (fps)	Sediment Depth (ft)	Sediment Penetrated (ft)	Sediment Recovered (ft)	Sediment Type	Interval (ft)	Description
390	6.0	0.00	7.80	7.80	3.90	FINE	0-0.33	DARK GREY SILT, SOME ORGANIC MATTER
							0.00-1.60	DARK GREY SILT, ORGANIC MATTER
							1.60-3.60	GREY/BROWN FINE SAND
							3.60-3.90	GREY/BROWN MEDIUM TO COARSE SAND WITH GRAVEL
476	9.6	0.00	4.20	2.50	2.40	FINE	0-0.33	GREY/BROWN FINE TO COARSE SAND, SOME FINE GRAVEL
							0.00-0.40	GREY/BROWN FINE TO COARSE SAND, SOME FINE GRAVEL
							0.40-1.30	BROWN FINE TO COARSE SAND, SOME GRAVEL, SILT
							1.30-1.50	WOOD
							1.50-1.90	GREY FINE TO COARSE SAND
							1.90-2.40	GREY FINE SAND, ORGANIC MATTER
610	2.8	0.00	7.70	5.90	3.90	FINE	0-0.33	GREY/BROWN SILTY FINE SAND, SOME ORGANIC MATTER
							0.00-0.30	GREY/BROWN SILTY FINE SAND, ORGANIC MATTER
							0.30-2.20	GREY FINE SANDY CLAY
							2.20-3.40	ORANGE/BROWN FINE SANDY CLAY
							3.40-3.90	DARK GREY FINE SANDY CLAY
751	1.8	0.00	12.90	9.50	2.50	FINE	0-0.33	DARK GREY/BROWN SILT AND CLAY
							0.00-0.70	DARK GREY/BROWN SILT
							0.70-1.50	GREY SILT
							1.50-2.10	LIGHT GREY SILTY CLAY
							2.10-2.50	TIGHT GREY FINE SAND

ALLIED PAPER, INC./PORTAGE CREEK/KALAMAZOO RIVER SUPERFUND SITE
TECHNICAL MEMORANDUM 10
SUMMARY OF SEDIMENT CHARACTERIZATION FIELD OBSERVATIONS

TRANSECT: KPT148		Date Collected: 02/03/94		River Width (ft): 1306.0		Distance to Right Edge of Water (ft): 0		
Distance From Right Bank (ft)	Water Depth (ft)	Water Velocity (fps)	Sediment Depth (ft)	Sediment Penetrated (ft)	Sediment Recovered (ft)	Sediment Type	Interval (ft)	Description
136	3.7	0.00	8.30	8.30	7.00	FINE	0-0.33	DARK GREY/BROWN SILT
							0.00-2.80	DARK GREY/BROWN SILT
							2.80-5.10	DARK GREY/BROWN SILT WITH FINE SAND AND ORGANIC MATTER
							5.10-7.00	GREY FINE SAND
305	0.7	0.00	8.30	8.30	3.60	FINE	0-0.33	DARK GREY/BROWN SILT WITH ORGANIC MATTER
							0.00-1.40	DARK GREY BROWN SILT WITH ORGANIC MATTER
							1.40-3.00	DARK GREY BROWN SILT WITH SOME FINE SAND
							3.00-3.60	TIGHT GREY FINE SAND
478	0.7	0.00	5.90	5.90	4.10	FINE	0-0.33	DARK GREY BROWN SILT WITH TRACE FINE SAND
							0.00-1.20	DARK GREY BROWN SILT, TRACE FINE SAND AND ORGANIC MATTER
							1.20-2.20	DARK GREY BROWN SILT AND FINE SAND
							2.20-4.10	GREY BROWN FINE SAND
648	1.3	0.00	10.70	10.70	4.70	FINE	0-0.33	DARK GREY/BROWN SILT, ORGANIC MATTER
							0.00-0.70	DARK GREY BROWN SILT WITH ORGANIC MATTER
							0.70-4.70	GREY BROWN SILT WITH FINE-COARSE SAND, TRACE FINE GRAVEL
818	1.4	0.00	7.60	6.90	4.40	FINE	0-0.33	DARK GREY/BROWN SILT WITH ORGANIC MATTER, TRACE FINE SAND
							0.00-0.90	DARK GREY/BROWN SILT WITH ORGANIC MATTER, TRACE FINE SAND
							0.90-2.50	GREY FINE SANDY SILT
							2.50-4.40	GREY/BROWN FINE SAND

ALLIED PAPER, INC./PORTAGE CREEK/KALAMAZOO RIVER SUPERFUND SITE
 TECHNICAL MEMORANDUM 10
 SUMMARY OF SEDIMENT CHARACTERIZATION FIELD OBSERVATIONS

TRANSECT: KPT148		Date Collected: 02/03/94		River Width (ft): 1306.0		Distance to Right Edge of Water (ft): 0		
Distance From Right Bank (ft)	Water Depth (ft)	Water Velocity (fps)	Sediment Depth (ft)	Sediment Penetrated (ft)	Sediment Recovered (ft)	Sediment Type	Interval (ft)	Description
998	4.0	0.00	9.70	5.30	1.90	FINE	0-0.33	DARK GREY/BROWN SILT, SOME ORGANIC MATTER, TRACE FINE SAND
							0.00-0.30	DARK GREY BROWN SILT, ORGANIC MATTER AND TRACE FINE SAND
							0.30-1.30	DARK GREY BROWN SILT AND FINE SAND
							1.30-1.60	GREY FINE SANDY CLAY
							1.60-1.90	ORANGE BROWN FINE SAND
1159	7.2	0.00	7.60	7.60	3.50	FINE	0-0.33	DARK BROWN SILT ON TOP OF GREY CLAY
							0.00-0.30	GREY BROWN SILT, SOME ORGANIC MATTER
							0.30-2.10	GREY CLAY
							2.10-3.30	GREY/DARK BROWN MOTTLED CLAY
							3.30-3.50	TIGHT GREY FINE SAND
1280	3.6	0.00	3.40	3.40	2.10	FINE	0-0.33	GREY/BROWN FINE TO MEDIUM SAND
							0.00-0.70	GREY BROWN FINE TO MEDIUM SAND
							0.70-2.10	BROWN FINE SAND

ALLIED PAPER, INC./PORTAGE CREEK/KALAMASOO RIVER SUPERFUND SITE
TECHNICAL MEMORANDUM 10
SUMMARY OF SEDIMENT CHARACTERIZATION FIELD OBSERVATIONS

TRANSECT: KPT149		Date Collected: 02/02/94		River Width (ft): 600.0		Distance to Right Edge of Water (ft): 0		
Distance From Right Bank (ft)	Water Depth (ft)	Water Velocity (fps)	Sediment Depth (ft)	Sediment Penetrated (ft)	Sediment Recovered (ft)	Sediment Type	Interval (ft)	Description
71	8.0	0.00	7.00	6.70	2.10	FINE	0-0.33	GREY-BROWN FINE-MEDIUM SAND, ORGANIC MATTER ATOP GREY-BROWN SILTY CLAY/ROOTS
							0.00-0.50	GREY BROWN FINE TO MEDIUM SAND
							0.50-0.80	DARK GREY BROWN SILTY CLAY, ROOTS
							0.80-1.80	GREY/DARK BROWN FINE SANDY CLAY
							1.80-2.10	GREY FINE SAND
148	7.0	0.00	4.80	2.60	1.20	FINE	0-0.33	DARK GREY/BROWN SILT AND ORGANIC MATTER
							0.00-0.40	DARK GREY/BROWN SILT, ORGANIC MATTER
							0.40-1.20	DARK GREY CLAY, SOME FINE SAND
223	5.0	0.00	6.70	6.70	2.10	FINE	0-0.33	DARK BROWN SILT, TRACE DARK GREY CLAY
							0.00-0.50	DARK BROWN SILT, DARK GREY SILT
							0.50-1.90	GREY FINE SANDY CLAY
							1.90-2.10	GREY FINE SAND, SOME CLAY
299	10.0	0.00	3.00	3.30	3.10	FINE	0-0.33	DARK GREY/BROWN FINE SANDY CLAY
							0.00-0.20	DARK BROWN FINE TO MEDIUM SAND AND SILT
							0.20-2.10	GREY CLAY WITH SOME LIGHT BROWN FINE SAND
							2.10-3.10	GREY FINE SAND, WOOD DEBRIS
376	8.0	0.00	9.80	9.80	4.30	FINE	0-0.33	DARK GREY BROWN SILT, SOME ORGANIC MATTER
							0.00-2.20	DARK GREY/BROWN SILT
							2.20-2.80	DARK GREY/BROWN FINE TO COARSE SAND AND SILT
							2.80-4.30	GREY BROWN FINE TO COARSE SAND

ALLIED PAPER, INC./PORTAGE CREEK/KALAMASOO RIVER SUPERFUND SITE
 TECHNICAL MEMORANDUM 10
 SUMMARY OF SEDIMENT CHARACTERIZATION FIELD OBSERVATIONS

TRANSECT: KPT149		Date Collected: 02/03/94		River Width (ft): 600.0		Distance to Right Edge of Water (ft): 0		
Distance From Right Bank (ft)	Water Depth (ft)	Water Velocity (fps)	Sediment Depth (ft)	Sediment Penetrated (ft)	Sediment Recovered (ft)	Sediment Type	Interval (ft)	Description
453	4.3	0.00	11.60	9.50	4.40	FINE	0-0.33	DARK GREY BROWN SILT, SOME ORGANIC MATTER
							0.00-2.60	DARK GREY BROWN SILT, SOME ORGANIC MATTER
							2.60-4.40	DARK GREY BROWN SILT WITH FINE SAND AND ORGANIC MATTER
528	2.3	0.00	7.00	5.50	2.50	FINE	0-0.33	DARK GREY BROWN SILT
							0.00-1.50	DARK GREY BROWN SILT
							1.50-2.00	DARK GREY SILT AND FINE SAND
							2.00-2.50	GREY FINE SAND AND CLAY
580	2.3	0.00	6.30	5.40	2.90	FINE	0-0.33	DARK GREY BROWN SILT, SOME ORGANIC MATTER
							0.00-1.70	DARK GREY BROWN SILT WITH ORGANIC MATTER
							1.70-2.20	DARK GREY BROWN SILT
							2.20-2.90	GREY FINE SANDY CLAY

ALLIED PAPER, INC./PORTAGE CREEK/KALAMAZOO RIVER SUPERFUND SITE
TECHNICAL MEMORANDUM 10
SUMMARY OF SEDIMENT CHARACTERIZATION FIELD OBSERVATIONS

TRANSECT: KPT150		Date Collected: 02/02/94		River Width (ft): 413.0		Distance to Right Edge of Water (ft): 0		
Distance From Right Bank (ft)	Water Depth (ft)	Water Velocity (fpa)	Sediment Depth (ft)	Sediment Penetrated (ft)	Sediment Recovered (ft)	Sediment Type	Interval (ft)	Description
33	4.4	0.00	4.70	4.70	3.00	FINE	0-0.33	DARK GREY BROWN SILTS
							0.00-1.70	DARK GREY BROWN SILT
							1.70-2.40	DARK GREY BROWN SILT WITH FINE SAND
							2.40-3.00	GREY BROWN FINE TO COARSE SAND, TRACE CLAY
84	3.8	0.00	5.30	6.20	2.90	FINE	0-0.33	DARK GREY/BROWN SILT
							0.00-1.60	DARK GREY/BROWN SILT
							1.60-2.40	DARK GREY/BROWN SILT AND FINE SAND, TRACE CLAY
							2.40-2.90	ORANGE/BROWN FINE SANDY CLAY
136	4.8	0.00	7.50	7.50	3.20	FINE	0-0.33	DARK GREY BROWN SILT, SOME ORGANIC MATTER
							0.00-0.80	DARK GREY/BROWN SILT
							0.80-1.40	DARK GREY/BROWN FINE SAND AND SILT
							1.40-2.40	DARK GREY/BROWN SILT, FINE SAND, TRACE CLAY
							2.40-2.70	BROWN FINE SAND
							2.70-3.20	FINE DARK GREY SAND
189	11.0	0.00	6.80	6.80	4.30	FINE	0-0.33	BROWN FINE SAND TO 2" THEN DARK GREY/BROWN FINE SAND AND SILT
							0.00-2.10	DARK GREY/BROWN SILT AND FINE SAND
							2.10-3.10	BROWN FINE SAND WITH SILT
							3.10-4.30	GREY FINE TO MEDIUM SAND

ALLIED PAPER, INC./PORTAGE CREEK/KALAMAZOO RIVER SUPERFUND SITE
 TECHNICAL MEMORANDUM 10
 SUMMARY OF SEDIMENT CHARACTERIZATION FIELD OBSERVATIONS

TRANSECT: KPT150		Date Collected: 02/02/94		River Width (ft): 413.0		Distance to Right Edge of Water (ft): 0		
Distance From Right Bank (ft)	Water Depth (ft)	Water Velocity (fps)	Sediment Depth (ft)	Sediment Penetrated (ft)	Sediment Recovered (ft)	Sediment Type	Interval (ft)	Description
243	12.0	0.00	9.10	9.10	6.50	FINE	0-0.33	DARK GREY BROWN SILT
							0.00-1.30	DARK GREY BROWN SILT
							1.30-3.00	DARK GREY BROWN FINE TO COARSE SAND
							3.00-6.00	GREY FINE TO COARSE SAND
							6.00-6.50	GREY FINE TO MEDIUM SAND
295	14.7	0.00	8.90	8.90	6.90	FINE	0-0.33	GREY FINE TO MEDIUM SAND
							0.00-1.80	GREY FINE TO MEDIUM SAND
							1.80-4.70	BROWN FINE TO COARSE SAND
							4.70-6.90	GREY FINE TO VERY FINE SAND
349	11.4	0.00	10.40	9.90	6.70	FINE	0-0.33	GREY FINE SAND AND ORGANIC MATTER
							0.00-0.40	GREY FINE SAND
							0.40-1.80	DARK GREY/BROWN SILT
							1.80-3.40	DARK GREY/BROWN FINE TO COARSE SAND
							3.40-4.90	DARK BROWN FINE SAND AND SILT
							4.90-6.70	LIGHT BROWN FINE SAND
396	3.5	0.00	4.70	4.70	4.20	FINE	0-0.33	DARK GREY FINE TO MEDIUM SAND, SOME ORGANIC MATTER
							0.00-0.40	DARK GREY FINE TO MEDIUM SAND, ORGANIC MATTER
							0.40-3.40	DARK BROWN FINE SAND
							3.40-4.20	DARK GREY FINE TO MEDIUM SAND, SOME GRAVEL, WOOD DEBRIS

ALLIED PAPER, INC./PORTAGE CREEK/KALAMAZOO RIVER SUPERFUND SITE
TECHNICAL MEMORANDUM 10
SUMMARY OF SEDIMENT CHARACTERISATION FIELD OBSERVATIONS

TRANSECT: KPT151		Date Collected: 02/01/94		River Width (ft): 813.0		Distance to Right Edge of Water (ft): 0		
Distance From Right Bank (ft)	Water Depth (ft)	Water Velocity (fps)	Sediment Depth (ft)	Sediment Penetrated (ft)	Sediment Recovered (ft)	Sediment Type	Interval (ft)	Description
70	6.5	0.00	9.30	9.30	7.20	FINE	0-0.33	DARK GREY BROWN SILT, SOME FINE SAND AND ORGANIC MATTER
							0.00-0.40	DARK GREY BROWN SILT, SOME FINE SAND AND ORGANIC MATTER
							0.40-6.40	BROWN FINE TO COARSE SAND
							6.40-6.70	LIGHT BROWN SILT
							6.70-7.20	DARK GREY SILT WITH FINE SAND AND TRACE OF ORGANICS
201	2.3	0.00	5.70	5.70	4.40	FINE	0-0.33	DARK BROWN SILT WITH ORGANIC MATTER
							0.00-0.80	DARK GREY BROWN SILT, SOME ORGANICS
							0.80-4.00	GREY FINE SAND AND SILT
							4.00-4.40	GREY FINE SAND
295	3.4	0.00	12.50	11.40	3.80	FINE	0-0.33	DARK BROWN SILT WITH ORGANIC MATTER
							0.00-0.80	DARK BROWN SILT WITH ORGANIC MATTER
							0.80-3.80	DARK GREY SILT, TRACE OF FINE SAND
385	4.0	0.00	14.90	14.90	4.80	FINE	0-0.33	DARK GREY BROWN SILT
							0.00-1.40	DARK GREY BROWN SILT
							1.40-3.80	GREY SILT WITH SOME FINE SAND
							3.80-4.80	GREY BROWN FINE TO COARSE SAND
484	4.3	0.00	8.00	8.00	2.90	FINE	0-0.33	DARK GREY BROWN SILT
							0.00-1.50	DARK GREY BROWN SILT
							1.50-2.80	GREY FINE SAND
							2.80-2.90	GREY FINE SAND WITH SOME ORGANICS AND SILT

ALLIED PAPER, INC./PORTAGE CREEK/KALAMAZOO RIVER SUPERFUND SITE
TECHNICAL MEMORANDUM 10
SUMMARY OF SEDIMENT CHARACTERISATION FIELD OBSERVATIONS

TRANSECT: KPT151		Date Collected: 02/01/94		River Width (ft): 813.0		Distance to Right Edge of Water (ft): 0		
Distance From Right Bank (ft)	Water Depth (ft)	Water Velocity (fps)	Sediment Depth (ft)	Sediment Penetrated (ft)	Sediment Recovered (ft)	Sediment Type	Interval (ft)	Description
585	6.2	0.00	6.20	6.10	3.00	FINE	0-0.33	DARK GREY BROWN SILT AND TRACE ORGANIC MATTER
							0.00-1.30	DARK GREY BROWN SILT AND TRACE ORGANIC MATTER
							1.30-2.50	GREY FINE SAND
							2.50-3.00	GREY FINE SAND, BROWN SILT
684	9.0	0.00	5.60	4.70	4.00	FINE	0-0.33	DARK GREY BROWN SILT AND SOME ORGANIC MATTER
							0.00-0.70	DARK GREY BROWN SILT AND SOME ORGANIC MATTER
							0.70-2.40	GREY SILT WITH FINE SAND
							2.40-4.00	LIGHT BROWN FINE SAND
784	7.5	0.00	7.00	3.00	2.20	FINE	0-0.33	BROWN FINE SAND
							0.00-0.20	BROWN FINE SAND
							0.20-1.70	GREY FINE SANDY CLAY
							1.70-2.20	GREY FINE SAND

ALLIED PAPER, INC./PORTAGE CREEK/KALAMAZOO RIVER SUPERFUND SITE
TECHNICAL MEMORANDUM 10
SUMMARY OF SEDIMENT CHARACTERIZATION FIELD OBSERVATIONS

TRANSECT: KPT152		Date Collected: 02/01/94		River Width (ft): 1892.0		Distance to Right Edge of Water (ft): 0		
Distance From Right Bank (ft)	Water Depth (ft)	Water Velocity (fps)	Sediment Depth (ft)	Sediment Penetrated (ft)	Sediment Recovered (ft)	Sediment Type	Interval (ft)	Description
134	6.1	0.00	18.90	18.90	10.70	FINE	0-0.33	GREY BROWN SILT
							0.00-4.10	DARK GREY BROWN SILT
							4.10-5.60	GREY BROWN FINE TO COARSE SAND
							5.60-10.70	LIGHT BROWN FINE TO MEDIUM SAND
384	3.6	0.00	9.70	8.70	6.90	FINE	0-0.33	DARK GREY BROWN SILT
							0.00-1.90	DARK GREY BROWN SILT
							1.90-2.60	DARK GREY BROWN SILT WITH SOME GREY FINE SAND
							2.60-6.10	GREY FINE SAND
							6.10-6.40	DARK GREY BROWN SILT AND ORGANIC MATTER
							6.40-6.90	GREY FINE SAND WITH ORGANIC MATTER
634	3.5	0.00	9.50	8.60	4.90	FINE	0-0.33	DARK GREY BROWN SILT
							0.00-2.00	DARK GREY BROWN SILT
							2.00-4.40	GREY FINE SAND
							4.40-4.90	GREY FINE TO MEDIUM SAND WITH ORGANIC MATTER
885	3.0	0.00	12.50	6.40	3.30	FINE	0-0.33	DARK GREY BROWN SILT
							0.00-1.90	DARK GREY BROWN SILT
							1.90-3.30	GREY FINE SAND WITH SOME CLAY

ALLIED PAPER, INC./PORTAGE CREEK/KALAMAZOO RIVER SUPERFUND SITE
TECHNICAL MEMORANDUM 10
SUMMARY OF SEDIMENT CHARACTERISATION FIELD OBSERVATIONS

TRANSECT: KPT152		Date Collected: 02/01/94		River Width (ft): 1892.0		Distance to Right Edge of Water (ft): 0		
Distance From Right Bank (ft)	Water Depth (ft)	Water Velocity (fps)	Sediment Depth (ft)	Sediment Penetrated (ft)	Sediment Recovered (ft)	Sediment Type	Interval (ft)	Description
1136	3.1	0.00	10.00	8.30	4.50	FINE	0-0.33	DARK GREY BROWN SILT
							0.00-2.40	DARK GREY BROWN SILT
							2.40-3.70	GREY FINE SAND WITH SOME DARK GREY BROWN SILT
							3.70-4.30	GREY FINE SAND
							4.30-4.50	LIGHT BROWN FINE SAND
1387	4.2	0.00	11.30	9.10	3.80	FINE	0-0.33	DARK GREY BROWN SILT
							0.00-2.10	DARK GREY BROWN SILT
							2.10-3.80	GREY FINE TO MEDIUM SAND, TRACE SILT
1636	7.3	0.00	15.10	13.10	8.00	FINE	0-0.33	DARK GREY BROWN SILT WITH ORGANIC MATTER
							0.00-3.50	DARK GREY BROWN SILT
							3.50-6.00	GREY BROWN FINE TO COARSE SAND
							6.00-7.50	LIGHT GREY FINE TO MEDIUM SAND
							7.50-8.00	GREY FINE SAND WITH ORGANIC MATTER ON TOP PIECE OF WOOD
1832	1.9	0.00	2.60	1.40	1.90	FINE	0-0.33	DARK GREY BROWN SILT AND FINE SAND ON TOP RED BROWN COARSE SAND AND GRAVEL
							0.00-0.40	DARK GREY SILT, SOME GREY FINE SAND
							0.40-1.30	ORANGE BROWN FINE SAND
							1.30-1.90	ORANGE BROWN MEDIUM TO COARSE WITH SOME GRAVEL

ALLIED PAPER, INC./PORTAGE CREEK/KALAMAZOO RIVER SUPERFUND SITE
TECHNICAL MEMORANDUM 10
SUMMARY OF SEDIMENT CHARACTERIZATION FIELD OBSERVATIONS

TRANSECT: KPT153		Date Collected: 01/31/94		River Width (ft): 2665.0		Distance to Right Edge of Water (ft): 0		
Distance From Right Bank (ft)	Water Depth (ft)	Water Velocity (fps)	Sediment Depth (ft)	Sediment Penetrated (ft)	Sediment Recovered (ft)	Sediment Type	Interval (ft)	Description
120	8.2	0.00	8.30	12.60	8.90	FINE	0-0.33	DARK GREY BROWN SILT, VERY SOFT
							0.00-3.50	DARK GREY SILT, VERY SOFT NEAR TOP
							3.50-5.20	GREY BROWN FINE SAND AND DARK GREY BROWN SILT
							5.20-6.60	FINE AND VERY FINE LIGHT BROWN SAND
							6.60-7.60	GREY BROWN FINE TO COARSE SAND
							7.60-8.70	GREY BROWN FINE SANDY CLAY
							8.70-8.90	BROWN CLAYEY PEAT
445	6.9	0.00	9.60	13.60	10.70	FINE	0-0.33	DARK GREY-BROWN SILT, VERY SOFT
							0.00-2.60	DARK GREY BROWN SILT
							2.60-4.10	DARK GREY BROWN FINE SAND AND SILT
							4.10-10.30	GREY BROWN FINE TO MEDIUM SAND
							10.30-10.70	DARK BROWN WOOD
775	6.6	0.00	9.10	8.20	6.80	FINE	0-0.33	VERY SOFT DARK GREY-BROWN SILT
							0.00-4.20	DARK GREY BROWN SILT
							4.20-5.30	LIGHT GREY FINE AND VERY FINE SAND
							5.30-5.90	GREY BROWN FINE SAND AND SILT
							5.90-6.80	GREY BROWN FINE TO VERY FINE SAND

ALLIED PAPER, INC./PORTAGE CREEK/KALAMAZOO RIVER SUPERFUND SITE
TECHNICAL MEMORANDUM 10
SUMMARY OF SEDIMENT CHARACTERIZATION FIELD OBSERVATIONS

TRANSECT: KPT153		Date Collected: 01/31/94		River Width (ft): 2665.0		Distance to Right Edge of Water (ft): 0		
Distance From Right Bank (ft)	Water Depth (ft)	Water Velocity (fps)	Sediment Depth (ft)	Sediment Penetrated (ft)	Sediment Recovered (ft)	Sediment Type	Interval (ft)	Description
1105	6.1	0.00	10.10	9.30	4.50	FINE	0-0.33	VERY SOFT DARK GREY-BROWN SILT
							0.00-2.10	DARK GREY BROWN SILT
							2.10-3.90	GREY BROWN FINE SANDY CLAY
							3.90-4.50	LIGHT GREY FINE SAND, TRACE OF CLAY
1437	6.0	0.00	8.50	7.00	2.80	FINE	0-0.33	VERY SOFT DARK GREY-BROWN SILT
							0.00-1.40	DARK GREY BROWN SILT
							1.40-2.00	GREY FINE SAND
							2.00-2.60	DARK GREY FINE SAND AND CLAY
							2.60-2.80	GREY CLAY AND ORANGE BROWN FINE SAND MOTTLED TOGETHER
1768	5.6	0.00	12.30	6.40	4.10	FINE	0-0.33	VERY SOFT DARK GREY-BROWN SILT
							0.00-2.00	DARK GREY-BROWN SILT
							2.00-3.00	GREY FINE SAND
							3.00-4.10	GREY CLAY AND ORANGE BROWN FINE SAND MOTTLED TOGETHER
2098	5.5	0.00	13.40	6.30	4.20	FINE	0-0.33	SOFT DARK GREY-BROWN SILT
							0.00-1.70	DARK GREY-BROWN FINE SILT, FIRM
							1.70-3.10	GREY FINE SAND
							3.10-4.20	GREY CLAY AND ORANGE BROWN FINE SAND MOTTLED TOGETHER

ALLIED PAPER, INC./PORTAGE CREEK/KALAMAZOO RIVER SUPERFUND SITE
 TECHNICAL MEMORANDUM 10
 SUMMARY OF SEDIMENT CHARACTERIZATION FIELD OBSERVATIONS

TRANSECT: KPT153		Date Collected: 01/31/94		River Width (ft): 2665.0		Distance to Right Edge of Water (ft): 0		
Distance From Right Bank (ft)	Water Depth (ft)	Water Velocity (fps)	Sediment Depth (ft)	Sediment Penetrated (ft)	Sediment Recovered (ft)	Sediment Type	Interval (ft)	Description
2574	6.7	0.00	7.30	4.70	3.40	FINE	0-0.33	SOFT DARK GREY-BROWN SILT
							0.00-1.40	DARK GREY BROWN SILT
							1.40-2.70	GREY FINE SAND
							2.70-3.40	GREY FINE SAND WITE SOME ORANGE BROWN FINE SAND

ALLIED PAPER, INC./PORTAGE CREEK/KALAMAZOO RIVER SUPERFUND SITE
TECHNICAL MEMORANDUM 10
SUMMARY OF SEDIMENT CHARACTERISATION FIELD OBSERVATIONS

TRANSECT: KPT154		Date Collected: 01/27/94		River Width (ft): 2786.0		Distance to Right Edge of Water (ft): 0		
Distance From Right Bank (ft)	Water Depth (ft)	Water Velocity (fps)	Sediment Depth (ft)	Sediment Penetrated (ft)	Sediment Recovered (ft)	Sediment Type	Interval (ft)	Description
143	9.8	0.00	8.50	5.50	4.10	FINE	0-0.33	DARK BROWN SILT
							0.00-2.80	DARK BROWN SILT
							2.80-3.00	BROWN PEAT
							3.00-3.50	GREY CLAY
							3.50-4.10	BROWN PEAT AND GREY CLAY
511	8.8	0.00	10.30	8.20	3.60	FINE	0-0.33	DARK BROWN SILT
							0.00-2.70	DARK BROWN SILT
							2.70-3.60	GREY CLAY
878	8.3	0.00	7.70	3.40	2.10	FINE	0-0.33	DARK GREY CLAY, TRACE FINE SAND
							0.00-0.40	DARK GREY CLAY, TRACE FINE SAND
							0.40-1.70	DARK GREY SILTY CLAY WITH LIGHT BROWN FINE SAND
							1.70-2.10	LIGHT BROWN FINE SAND, TRACE CLAY
1256	8.5	0.00	5.90	5.80	2.80	FINE	0-0.33	DARK GREY SILT
							0.00-0.90	DARK GREY SILT
							0.90-2.00	GREY FINE SANDY CLAY
							2.00-2.80	GREY FINE SAND
1623	7.6	0.00	11.10	8.20	3.90	FINE	0-0.33	DARK BROWN SILT
							0.00-2.40	DARK BROWN SILT
							2.40-3.60	GREY FINE SANDY CLAY
							3.60-3.90	BROWN PEAT

ALLIED PAPER, INC./PORTAGE CREEK/KALAMAZOO RIVER SUPERFUND SITE
TECHNICAL MEMORANDUM 10
SUMMARY OF SEDIMENT CHARACTERIZATION FIELD OBSERVATIONS

TRANSECT: KPT154		Date Collected: 01/27/94		River Width (ft): 2786.0		Distance to Right Edge of Water (ft): 0		
Distance From Right Bank (ft)	Water Depth (ft)	Water Velocity (fps)	Sediment Depth (ft)	Sediment Penetrated (ft)	Sediment Recovered (ft)	Sediment Type	Interval (ft)	Description
1998	8.3	0.00	9.00	5.30	2.60	FINE	0-0.33	DARK GREY/BROWN SILT
							0.00-1.80	DARK GREY/BROWN SILT
							1.80-2.60	BROWN PEAT
2364	8.5	0.00	19.00	6.40	2.40	FINE	0-0.33	DARK GREY SILT
							0.00-1.40	DARK GREY SILT
							1.40-2.40	BROWN PEAT
2699	7.0	0.00	15.60	8.00	2.70	FINE	0-0.33	DARK GREY SILT
							0.00-1.70	DARK GREY SILT
							1.70-2.70	BROWN PEAT

ALLIED PAPER, INC./PORTAGE CREEK/KALAMAZOO RIVER SUPERFUND SITE
 TECHNICAL MEMORANDUM 10
 SUMMARY OF SEDIMENT CHARACTERIZATION FIELD OBSERVATIONS

TRANSECT: KPT155		Date Collected: 01/19/94		River Width (ft): 1965.0		Distance to Right Edge of Water (ft): 0		
Distance From Right Bank (ft)	Water Depth (ft)	Water Velocity (fps)	Sediment Depth (ft)	Sediment Penetrated (ft)	Sediment Recovered (ft)	Sediment Type	Interval (ft)	Description
187	10.5	0.00	8.00	4.00	2.40	FINE	0-0.33	BROWN - DARK BROWN SILT, TRACE FINE SAND, ORGANICS
							0.00-0.80	DARK BROWN SILT, ORGANICS, TRACE FINE SAND
							0.80-2.40	DARK BROWN FINE SAND WITH SILT
366	11.7	0.00	3.30	2.20	1.90	FINE	0-0.33	BROWN/DARK BROWN SILT, TRACE FINE SAND
							0.00-0.40	DARK BROWN SILT, TRACE FINE SAND
							0.40-1.20	DARK BROWN FINE SAND AND SILT
							1.20-1.90	DARK BROWN FINE SAND, TRACE OF SILT AND ORGANICS
636	10.8	0.00	9.20	9.20	5.00	FINE	0-0.33	DARK BROWN GREY SILT, ORGANICS
							0.00-1.00	DARK GREY BROWN SILT, TRACE ORGANICS
							1.00-2.70	DARK BROWN SILT WITH FINE SAND
							2.70-5.00	GREY FINE SAND
907	9.8	0.00	11.20	3.60	2.00	FINE	0-0.33	BROWN TO DARK BROWN GREY SILT, TRACE OF FINE SAND, TRACE OF ORGANICS
							0.00-1.00	BROWN TO DARK BROWN GREY SILT, TRACE FINE SAND & ORGANICS
							1.00-2.00	GREY SILTY CLAY
1181	11.0	0.00	6.00	3.40	1.90	FINE	0-0.33	DARK GREY BROWN SILT
							0.00-1.30	BROWN TO DARK BROWN SILT
							1.30-1.90	DARK GREY TO GREY CLAY WITH SOME SILT
1451	10.3	0.00	8.70	3.30	1.20	FINE	0-0.33	BROWN/DARK BROWN SILT
							0.00-0.50	BROWN/DARK BROWN SILT
							0.50-1.20	DARK BROWN TO DARK GREY CLAYEY SILT

ALLIED PAPER, INC./PORTAGE CREEK/KALAMAZOO RIVER SUPERFUND SITE
 TECHNICAL MEMORANDUM 10
 SUMMARY OF SEDIMENT CHARACTERIZATION FIELD OBSERVATIONS

TRANSECT: KPT155		Date Collected: 01/20/94		River Width (ft): 1965.0		Distance to Right Edge of Water (ft): 0		
Distance From Right Bank (ft)	Water Depth (ft)	Water Velocity (fps)	Sediment Depth (ft)	Sediment Penetrated (ft)	Sediment Recovered (ft)	Sediment Type	Interval (ft)	Description
1720	10.3	0.00	7.00	5.80	5.00	FINE	0-0.33	BROWN/DARK BROWN SILT, TRACE FINE SAND
							0.00-1.00	DARK BROWN SILT, TRACE FINE SAND
							1.00-5.00	GREY FINE SAND, TRACE SILT
1925	12.7	0.00	10.60	10.60	7.90	FINE	0-0.33	DARK GREY FINE SAND, TRACE SILT, ORGANICS
							0.00-0.50	DARK GREY FINE SAND, TRACE SILT, ORGANICS
							0.50-3.50	DARK BROWN FINE SAND, TRACE SILT
							3.50-7.90	DARK BROWN FINE SAND

ALLIED PAPER, INC./PORTAGE CREEK/KALAMAZOO RIVER SUPERFUND SITE
TECHNICAL MEMORANDUM 10
SUMMARY OF SEDIMENT CHARACTERIZATION FIELD OBSERVATIONS

TRANSECT: RPT156		Date Collected: 01/20/94		River Width (ft): 2200.0		Distance to Right Edge of Water (ft): 0		
Distance From Right Bank (ft)	Water Depth (ft)	Water Velocity (fps)	Sediment Depth (ft)	Sediment Penetrated (ft)	Sediment Recovered (ft)	Sediment Type	Interval (ft)	Description
92	3.2	0.00	10.80	8.40	6.30	FINE	0-0.33	LIGHT BROWN TO BROWN FINE SAND
							0.00-0.40	LIGHT BROWN/ BROWN FINE SAND
							0.40-6.10	LIGHT BROWN FINE SAND
							6.10-6.30	DARK BROWN FINE SAND WITH SILT, TRACE PEAT
379	12.6	0.00	4.90	2.30	1.40	FINE	0-0.33	DARK BROWN SILT
							0.00-1.10	DARK BROWN SILT, TRACE ORGANICS
							1.10-1.40	GREY/BROWN SILTY CLAY
659	12.0	0.00	9.20	4.00	2.70	FINE	0-0.33	DARK BROWN SILTS, ORGANICS, TRACE CLAY
							0.00-0.80	BROWN TO DARK BROWN SILT, ORGANICS, TRACE CLAY
							0.80-2.70	YELLOW/GREY FINE SAND WITH CLAY
944	11.5	0.00	11.90	4.50	2.30	FINE	0-0.33	DARK BROWN FINE SAND AND SILT
							0.00-1.40	DARK BROWN SILT WITH SOME FINE SAND
							1.40-2.30	BROWN FINE SAND, TRACE OF SILT
1229	10.5	0.00	7.50	4.70	4.20	FINE	0-0.33	DARK BROWN SILT WITH FINE SAND
							0.00-3.00	DARK BROWN SILT WITH FINE SAND
							3.00-4.20	BROWN FINE SAND
1513	16.3	0.00	10.20	10.20	2.50	FINE	0-0.33	DARK BROWN SILT, TRACE OF FINE SAND
							0.00-0.20	LOOSE DARK BROWN SILT
							0.20-2.50	DARK BROWN SILT, SOME FINE SAND

ALLIED PAPER, INC./PORTAGE CREEK/KALAMAZOO RIVER SUPERFUND SITE
TECHNICAL MEMORANDUM 10
SUMMARY OF SEDIMENT CHARACTERIZATION FIELD OBSERVATIONS

TRANSECT: KPT156		Date Collected: 01/21/94		River Width (ft): 2200.0		Distance to Right Edge of Water (ft): 0		
Distance From Right Bank (ft)	Water Depth (ft)	Water Velocity (fpe)	Sediment Depth (ft)	Sediment Penetrated (ft)	Sediment Recovered (ft)	Sediment Type	Interval (ft)	Description
1805	12.9	0.00	6.50	6.50	3.60	FINE	0-0.33	DARK BROWN SILT ON TOP OF DARK GREY CLAY
							0.00-0.20	DARK BROWN SILT
							0.20-0.60	DARK GREY CLAYEY SILT
							0.60-1.60	BROWN TO GREY FINE SAND, SOME CLAY
							1.60-3.60	BROWN TO GREY FINE SAND
2066	11.5	0.00	7.70	7.70	3.30	FINE	0-0.33	BROWN SILT, TRACE FINE SAND ON TOP OF DARK BROWN FINE SAND, TRACE OF SILT
							0.00-0.20	DARK BROWN SILT, TRACE OF FINE SAND
							0.20-1.30	DARK BROWN FINE SAND, TRACE OF SILT
							1.30-2.40	BROWN TO GREY CLAYEY SILT, TRACE OF FINE SAND
							2.40-3.30	BROWN FINE SAND

ALLIED PAPER, INC./PORTAGE CREEK/KALAMASOO RIVER SUPERFUND SITE
TECHNICAL MEMORANDUM 10
SUMMARY OF SEDIMENT CHARACTERIZATION FIELD OBSERVATIONS

TRANSECT: KPT157		Date Collected: 01/13/94		River Width (ft): 5299.0		Distance to Right Edge of Water (ft): 0		
Distance From Right Bank (ft)	Water Depth (ft)	Water Velocity (fps)	Sediment Depth (ft)	Sediment Penetrated (ft)	Sediment Recovered (ft)	Sediment Type	Interval (ft)	Description
93	9.0	0.00	9.00	5.50	2.40	FINE	0-0.33	DARK BROWN SILT
							0.00-0.60	BROWN TO DARK BROWN SILT
							0.60-1.20	DARK BROWN FINE SAND WITH SILT
							1.20-2.40	PEAT, WOOD DEBRIS BROWN
882	11.5	0.00	14.80	9.70	4.80	FINE	0-0.33	DARK BROWN SILT
							0.00-2.10	BROWN TO DARK BROWN SILT
							2.10-4.80	BROWN PEAT
1660	12.5	0.00	14.50	9.00	4.00	FINE	0-0.33	DARK BROWN SILT WITH ORGANIC MATTER
							0.00-1.30	BROWN TO DARK BROWN SILT
							1.30-4.00	DARK BROWN PEAT WITH SILT
2434	12.8	0.00	13.80	9.70	3.10	FINE	0-0.33	DARK BROWN SILT
							0.00-1.00	BROWN TO DARK BROWN SILT
							1.00-1.60	DARK BROWN TO DARK GREY SILT WITH CLAY
							1.60-3.10	PEAT, BROWN WITH SILT
3239	12.5	0.00	7.50	5.30	2.70	FINE	0-0.33	DARK BROWN SILT
							0.00-1.60	DARK BROWN TO BROWN SILT
							1.60-2.70	DARK GREY CLAY WITH PEAT MIXED

ALLIED PAPER, INC./PORTAGE CREEK/KALAMASOO RIVER SUPERFUND SITE
 TECHNICAL MEMORANDUM 10
 SUMMARY OF SEDIMENT CHARACTERIZATION FIELD OBSERVATIONS

TRANSECT: KPT157		Date Collected: 01/13/94		River Width (ft): 5299.0		Distance to Right Edge of Water (ft): 0		
Distance From Right Bank (ft)	Water Depth (ft)	Water Velocity (fps)	Sediment Depth (ft)	Sediment Penetrated (ft)	Sediment Recovered (ft)	Sediment Type	Interval (ft)	Description
4018	11.9	0.00	5.60	5.60	3.30	FINE	0-0.33	DARK BROWN SILT
							0.00-1.70	BROWN TO DARK BROWN SILT
							1.70-3.10	DARK GREY CLAY WITH SILT
							3.10-3.30	GREY FINE SAND
4802	10.5	0.00	3.50	2.00	1.80	FINE	0-0.33	DARK BROWN SILT, TRACE OF FINE SAND
							0.00-0.50	DARK BROWN SILT, TRACE FINE SAND
							0.50-1.10	TAN TO ORANGE SILT WITH CLAY
							1.10-1.80	TAN TO ORANGE FINE TO COARSE SAND WITH CLAY, TRACE GRAVEL
5237	3.6	0.00	6.50	5.40	1.80	FINE	0-0.33	BROWN FINE TO MEDIUM SAND
							0.00-1.50	BROWN TO DARK BROWN FINE SAND
							1.50-1.80	BROWN FINE TO MEDIUM SAND, TRACE COARSE SAND AND GRAVEL

ALLIED PAPER, INC./PORTAGE CREEK/KALAMAIOO RIVER SUPERFUND SITE
 TECHNICAL MEMORANDUM 10
 SUMMARY OF SEDIMENT CHARACTERIZATION FIELD OBSERVATIONS

TRANSECT: KPT158		Date Collected: 01/12/94		River Width (ft): 4430.0		Distance to Right Edge of Water (ft): 0		
Distance From Right Bank (ft)	Water Depth (ft)	Water Velocity (fps)	Sediment Depth (ft)	Sediment Penetrated (ft)	Sediment Recovered (ft)	Sediment Type	Interval (ft)	Description
89	10.3	0.00	7.90	3.80	2.00	FINE	0-0.33	DARK BROWN FINE SAND, SOME SILT
							0.00-1.50	DARK BROWN FINE SAND, SILT
							1.50-2.00	DARK BROWN PEAT
750	12.5	0.00	20.00	10.50	3.70	FINE	0-0.33	DARK BROWN SILT
							0.00-0.10	LOOSE WATERY ORGANICS
							0.10-1.00	DARK BROWN SILT
							1.00-2.00	DARK BROWN TO DARK GREY SILT
							2.00-2.70	BROWN, DARK BROWN PEAT AND SILT
							2.70-3.50	GREY TO BROWN SILT
3.50-3.70	BROWN PEAT							
1419	12.8	0.00	14.20	9.70	3.70	FINE	0-0.33	DARK BROWN SILT
							0.00-0.10	LOOSE WATERY SILT
							0.10-1.70	DARK BROWN SILT
							1.70-2.20	DARK BROWN PEAT WITH SILT
							2.20-3.60	GREY FINE SAND WITH CLAY
							3.60-3.70	WOOD DEBRIS

ALLIED PAPER, INC./PORTAGE CREEK/KALAMASOO RIVER SUPERFUND SITE
 TECHNICAL MEMORANDUM 10
 SUMMARY OF SEDIMENT CHARACTERIZATION FIELD OBSERVATIONS

TRANSECT: KPT158		Date Collected: 01/12/94		River Width (ft): 4430.0		Distance to Right Edge of Water (ft): 0		
Distance From Right Bank (ft)	Water Depth (ft)	Water Velocity (fps)	Sediment Depth (ft)	Sediment Penetrated (ft)	Sediment Recovered (ft)	Sediment Type	Interval (ft)	Description
2075	13.0	0.00	16.00	8.70	4.20	FINE	0-0.33	DARK BROWN SILT
							0.00-0.20	LOOSE WATERY SILT, DARK BROWN
							0.20-2.50	DARK BROWN SILT
							2.50-3.20	DARK BROWN PEAT
							3.20-4.20	GREY FINE SAND WITH CLAY
2728	12.9	0.00	4.20	3.60	2.10	FINE	0-0.33	DARK BROWN SILT
							0.00-0.10	LOOSE WATERY SILT
							0.10-1.10	DARK BROWN SILT
							1.10-2.10	GREY CLAY
3383	11.6	0.00	11.70	8.60	6.20	FINE	0-0.33	DARK BROWN TO DARK GREY SILT WITH CLAY, TRACE OF FINE SAND
							0.00-1.30	DARK BROWN TO DARK GREY SILT WITH CLAY, TRACE FINE SAND
							1.30-4.40	GREY TO BROWN FINE SAND, TRACE SILT
							4.40-6.20	DARK GREY TO BLACK FINE SAND AND SILT
4045	14.1	0.00	11.50	14.90	9.50	FINE	0-0.33	DARK BROWN SILT
							0.00-1.30	BROWN TO DARK BROWN SILT
							1.30-7.10	DARK BROWN TO BLACK FINE-MEDIUM SAND, TRACE COARSE SAND
							7.10-9.50	GREY TO BROWN FINE SAND

ALLIED PAPER, INC./PORTAGE CREEK/KALAMAZOO RIVER SUPERFUND SITE
 TECHNICAL MEMORANDUM 10
 SUMMARY OF SEDIMENT CHARACTERISATION FIELD OBSERVATIONS

TRANSECT: KPT158		Date Collected: 01/12/94		River Width (ft): 4430.0		Distance to Right Edge of Water (ft): 0		
Distance From Right Bank (ft)	Water Depth (ft)	Water Velocity (fps)	Sediment Depth (ft)	Sediment Penetrated (ft)	Sediment Recovered (ft)	Sediment Type	Interval (ft)	Description
4407	11.2	0.00	4.30	3.80	3.10	FINE	0-0.33	DARK BROWN TO BLACK FINE SAND, TRACE OF SILT
							0.00-0.30	DARK BROWN TO BLACK FINE SAND, TRACE OF SILT
							0.30-0.90	DARK BROWN TO BROWN SILT
							0.90-2.80	DARK BROWN TO BLACK SILT TO CLAY
							2.80-3.10	DARK BROWN, DARK GREY CLAY

ALLIED PAPER, INC./PORTAGE CREEK/KALAMAZOO RIVER SUPERFUND SITE
TECHNICAL MEMORANDUM 10
SUMMARY OF SEDIMENT CHARACTERISATION FIELD OBSERVATIONS

TRANSECT: KPT159		Date Collected: 01/12/94		River Width (ft): 3251.0		Distance to Right Edge of Water (ft): 0		
Distance From Right Bank (ft)	Water Depth (ft)	Water Velocity (fps)	Sediment Depth (ft)	Sediment Penetrated (ft)	Sediment Recovered (ft)	Sediment Type	Interval (ft)	Description
49	8.5	0.00	11.50	5.50	4.00	FINE	0-0.33	BROWN FINE SAND, SOME SILT
							0.00-1.20	BROWN FINE SAND, SOME SILT
							1.20-1.70	DARK BROWN FINE SAND WITH TRACE SILT
							1.70-2.10	DARK BROWN SILT WITH TRACE FINE SAND
							2.10-2.70	DARK GREY CLAY, TRACE SILT
							2.70-3.00	DARK BROWN PEAT
							3.00-4.00	TAN FINE SAND, TRACE MEDIUM SAND AND SILT
514	10.1	0.00	12.30	5.70	3.40	FINE	0-0.33	BROWN TO DARK BROWN SILT
							0.00-1.90	BROWN TO DARK BROWN SILT
							1.90-3.40	DARK BROWN SAND
970	11.5	0.00	4.50	4.00	3.00	FINE	0-0.33	BROWN TO DARK BROWN SILT
							0.00-1.00	DARK BROWN SILT
							1.00-2.00	DARK GREY CLAY SILT
							2.00-3.00	DARK BROWN PEAT
1423	13.0	0.00	13.00	7.00	3.70	FINE	0-0.33	BROWN TO DARK BROWN SILT
							0.00-1.20	BROWN TO DARK BROWN SILT
							1.20-2.00	DARK BROWN TO DARK GREY SILT
							2.00-3.70	DARK BROWN SILT, PEAT, WOOD DEBRIS

ALLIED PAPER, INC./PORTAGE CREEK/KALAMAZOO RIVER SUPERFUND SITE
 TECHNICAL MEMORANDUM 10
 SUMMARY OF SEDIMENT CHARACTERIZATION FIELD OBSERVATIONS

TRANSECT: KPT159		Date Collected: 01/12/94		River Width (ft): 3251.0		Distance to Right Edge of Water (ft): 0		
Distance From Right Bank (ft)	Water Depth (ft)	Water Velocity (fps)	Sediment Depth (ft)	Sediment Penetrated (ft)	Sediment Recovered (ft)	Sediment Type	Interval (ft)	Description
1889	13.6	0.00	18.40	7.40	3.00	FINE	0-0.33	DARK BROWN SILT
							0.00-0.10	LOOSE WATERY SILT, ALGAE, ORGANICS
							0.10-0.40	DARK BROWN SILT
							0.40-1.40	DARK BROWN SILT, POSSIBLE CLAY (FIRM)
							1.40-3.00	DARK BROWN PEAT, WOOD DEBRIS, ORGANICS
2354	14.0	0.00	10.50	3.80	2.10	FINE	0-0.33	DARK BROWN SILT
							0.00-0.10	LOOSE WATERY SILT, ORGANICS
							0.10-1.20	DARK BROWN SILT
							1.20-2.10	DARK GREY SILTY CLAY
2824	19.0	0.00	7.70	7.60	5.70	FINE	0-0.33	DARK BROWN SILT
							0.00-1.00	DARK BROWN SILT, LOOSE
							1.00-2.80	DARK BROWN TO DARK GREY CLAYEY SILT
							2.80-5.70	DARK GREY FINE SAND
3206	9.8	0.00	11.40	8.40	6.70	FINE	0-0.33	DARK BROWN TO BLACK FINE SAND WITH SILT AND ORGANIC MATTER
							0.00-0.20	DARK BROWN FINE SAND
							0.20-1.10	DARK BROWN TO BLACK FINE SAND AND SILT
							1.10-6.70	BROWN TO DARK BROWN FINE SAND

ALLIED PAPER, INC./PORTAGE CREEK/KALAMAZOO RIVER SUPERFUND SITE
TECHNICAL MEMORANDUM 10
SUMMARY OF SEDIMENT CHARACTERIZATION FIELD OBSERVATIONS

TRANSECT: KPT160		Date Collected: 01/24/94		River Width (ft): 186.0		Distance to Right Edge of Water (ft): 0		
Distance From Right Bank (ft)	Water Depth (ft)	Water Velocity (fps)	Sediment Depth (ft)	Sediment Penetrated (ft)	Sediment Recovered (ft)	Sediment Type	Interval (ft)	Description
23	7.0	0.00	5.50	4.50	3.80	FINE	0-0.33	BROWN TO DARK BROWN SAND AND SOME SILTS
							0.00-0.30	BROWN FINE SAND
							0.30-2.10	GREY-BROWN SILT AND FINE SANDS
							2.10-3.80	GREY-BROWN VERY FINE TIGHT SAND
59	10.1	0.00	6.40	3.20	2.90	FINE	0-0.33	GREY-BROWN FINE-COARSE SAND, TRACE GREY CLAY-LIKE MATERIAL & ORGANIC MATTER
							0.00-0.20	GREY-BROWN FINE TO MEDIUM SAND
							0.20-0.50	DARK GREY SILTY CLAY
							0.50-1.20	GREY FINE SAND
							1.20-2.90	DARK GREY SILTY CLAY
92	8.6	0.00	5.90	5.90	5.50	FINE	0-0.33	GREY-BROWN FINE TO MEDIUM SAND WITH SOME ORGANIC MATTER
							0.00-0.60	GREY-BROWN FINE TO COARSE SAND
							0.60-1.10	GREY FINE SAND
							1.10-3.20	DARK GREY SILTS AND VERY FINE SAND
							3.20-5.50	GREY FINE TO MEDIUM SAND
126	6.3	0.00	9.20	9.10	6.60	COARSE	0-0.33	GREY-BROWN FINE TO COARSE SAND
							0.00-3.40	GREY-BROWN FINE TO COARSE SAND
							3.40-4.40	DARK GREY FINE SAND AND SOME SILTS
							4.40-6.60	LIGHT BROWN FINE AND VERY FINE SAND

ALLIED PAPER, INC./PORTAGE CREEK/KALAMASCO RIVER SUPERFUND SITE
 TECHNICAL MEMORANDUM 10
 SUMMARY OF SEDIMENT CHARACTERIZATION FIELD OBSERVATIONS

TRANSECT: KPT160		Date Collected: 01/24/94		River Width (ft): 186.0		Distance to Right Edge of Water (ft): 0		
Distance From Right Bank (ft)	Water Depth (ft)	Water Velocity (fps)	Sediment Depth (ft)	Sediment Penetrated (ft)	Sediment Recovered (ft)	Sediment Type	Interval (ft)	Description
163	6.0	0.00	7.30	5.70	5.30	FINE	0-0.33	DARK GREY BROWN FINE SAND WITH SILTS
							0.00-0.50	DARK GREY-BROWN SILTS AND FINE SAND
							0.50-1.40	GREY-BROWN FINE SAND
							1.40-4.60	LIGHT BROWN FINE TO MEDIUM SAND
							4.60-5.30	GREY-BROWN PEAT MATERIAL
190	2.6	0.00	6.40	6.30	5.30	FINE	0-0.33	DARK GREY FINE SAND WITH SOME SILTS
							0.00-0.90	DARK GREY FINE SAND AND SILTS
							0.90-1.10	GREY-BROWN PEAT MATERIAL
							1.10-5.30	DARK GREY AND GREY FINE SANDS AND SOME SILTS

ALLIED PAPER, INC./PORTAGE CREEK/KALAMAZOO RIVER SUPERFUND SITE
 TECHNICAL MEMORANDUM 10
 SUMMARY OF SEDIMENT CHARACTERIZATION FIELD OBSERVATIONS

TRANSECT: KPT161		Date Collected: 01/25/94		River Width (ft): 183.0		Distance to Right Edge of Water (ft): 0		
Distance From Right Bank (ft)	Water Depth (ft)	Water Velocity (fps)	Sediment Depth (ft)	Sediment Penetrated (ft)	Sediment Recovered (ft)	Sediment Type	Interval (ft)	Description
21	3.2	0.00	7.30	3.40	2.80	FINE	0-0.33	BROWN FINE SAND, SOME SILT AND ORGANIC MATTER
							0.00-0.40	BROWN FINE SAND, SOME SILT AND ORGANIC MATTER
							0.40-0.70	DARK GREY FINE SAND, SOME SILT AND ORGANIC MATTER
							0.70-1.40	GREY-BROWN FINE AND VERY FINE SAND
							1.40-2.80	GREY-BROWN FINE TO MEDIUM SAND
54	6.0	0.00	4.00	4.00	3.20	COARSE	0-0.33	GREY-BROWN FINE TO COARSE SAND
							0.00-0.90	GREY-BROWN FINE TO COARSE SAND
							0.90-1.30	DARK GREY FINE TO COARSE SAND
							1.30-2.20	BROWN FINE TO MEDIUM SAND, TRACE ORGANIC MATTER
							2.20-3.20	GREY FINE SAND AND VERY FINE SAND
85	7.2	0.00	9.30	7.10	4.60	COARSE	0-0.33	GREY-BROWN FINE TO COARSE SAND
							0.00-2.70	GREY-BROWN FINE TO COARSE SAND
							2.70-4.60	GREY FINE AND VERY FINE SAND WITH SOME SILT
119	7.2	0.00	6.80	6.00	4.10	COARSE	0-0.33	BROWN FINE TO COARSE SAND
							0.00-1.00	BROWN FINE TO COARSE SAND
							1.00-4.10	GREY AND GREY-BROWN FINE TO COARSE SAND
150	7.1	0.00	5.20	5.20	3.60	COARSE	0-0.33	GREY-BROWN FINE TO COARSE SAND AND ORGANIC MATTER
							0.00-0.60	GREY-BROWN FINE TO COARSE SAND & ORGANIC MATTER, WOOD
							0.60-3.60	GREY AND GREY-BROWN VERY FINE TO COARSE SAND

ALLIED PAPER, INC./PORTAGE CREEK/KALAMAZOO RIVER SUPERFUND SITE
 TECHNICAL MEMORANDUM 10
 SUMMARY OF SEDIMENT CHARACTERIZATION FIELD OBSERVATIONS

TRANSECT: KPT161		Date Collected: 01/25/94		River Width (ft): 183.0		Distance to Right Edge of Water (ft): 0		
Distance From Right Bank (ft)	Water Depth (ft)	Water Velocity (fps)	Sediment Depth (ft)	Sediment Penetrated (ft)	Sediment Recovered (ft)	Sediment Type	Interval (ft)	Description
185	4.0	0.00	3.40	3.40	2.70	COARSE	0-0.33	GREY-BROWN FINE TO COARSE SAND AND ORGANIC MATTER
							0.00-2.70	GREY-BROWN FINE TO COARSE SAND & ORGANIC MATTER, WOOD

ALLIED PAPER, INC./PORTAGE CREEK/KALAMAZOO RIVER SUPERFUND SITE
 TECHNICAL MEMORANDUM 10
 SUMMARY OF SEDIMENT CHARACTERIZATION FIELD OBSERVATIONS

TRANSECT: KPT162		Date Collected: 01/25/94		River Width (ft): 136.0		Distance to Right Edge of Water (ft): 0		
Distance From Right Bank (ft)	Water Depth (ft)	Water Velocity (fps)	Sediment Depth (ft)	Sediment Penetrated (ft)	Sediment Recovered (ft)	Sediment Type	Interval (ft)	Description
16	4.8	0.00	8.00	8.00	7.20	FINE	0-0.33	GREY-BROWN FINE TO MEDIUM SAND AND SILTS
							0.00-2.30	GREY-BROWN FINE TO MEDIUM SAND AND SILTS
							2.30-6.20	GREY-BROWN FINE SAND
							6.20-7.20	DARK GREY FINE TO MEDIUM SAND
40	10.0	0.00	3.60	3.60	3.20	FINE	0-0.33	GREY-BROWN FINE SAND AND SILTS
							0.00-0.90	GREY-BROWN FINE SAND AND SILTS
							0.90-2.20	GREY FINE TO MEDIUM SAND
							2.20-3.20	GREY-BROWN SILT AND PEAT MATERIAL
67	12.6	0.00	1.80	1.80	1.80	FINE	0-0.33	BROWN FINE TO MEDIUM SAND
							0.00-0.30	BROWN FINE TO MEDIUM SAND
							0.30-0.80	GREY FINE SAND
							0.80-1.80	GREY-BROWN SILT AND PEAT MATERIAL
86	10.2	0.00	4.30	4.30	3.90	COARSE	0-0.33	BROWN FINE TO COARSE SAND
							0.00-1.20	BROWN FINE TO COARSE SAND
							1.20-3.60	GREY FINE AND VERY FINE SAND, SOME SILTS
							3.60-3.90	DARK BROWN SILT AND PEAT MATERIAL, SOME FINE GREY SAND

ALLIED PAPER, INC./PORTAGE CREEK/KALAMAZOO RIVER SUPERFUND SITE
 TECHNICAL MEMORANDUM 10
 SUMMARY OF SEDIMENT CHARACTERISATION FIELD OBSERVATIONS

TRANSECT: KPT162		Date Collected: 01/25/94		River Width (ft): 136.0		Distance to Right Edge of Water (ft): 0		
Distance From Right Bank (ft)	Water Depth (ft)	Water Velocity (fps)	Sediment Depth (ft)	Sediment Penetrated (ft)	Sediment Recovered (ft)	Sediment Type	Interval (ft)	Description
111	7.3	0.00	7.80	6.90	6.00	FINE	0-0.33	BROWN FINE TO MEDIUM SAND
							0.00-1.20	BROWN FINE TO MEDIUM SAND
							1.20-3.80	GREY-BROWN FINE SAND AND SILTS
							3.80-5.40	GREY FINE TO MEDIUM SAND
							5.40-5.60	DARK BROWN PIECE OF WOOD
							5.60-6.00	GREY FINE TO MEDIUM SAND
135	3.6	0.00	7.70	7.70	5.60	FINE	0-0.33	DARK GREY BROWN FINE TO MEDIUM SAND
							0.00-3.80	DARK GREY BROWN FINE TO MEDIUM SAND
							3.80-5.60	DARK GREY BROWN FINE SAND AND SILT, SOME PEAT MATERIAL

ALLIED PAPER, INC./PORTAGE CREEK/KALAMAZOO RIVER SUPERFUND SITE
TECHNICAL MEMORANDUM 10
SUMMARY OF SEDIMENT CHARACTERIZATION FIELD OBSERVATIONS

TRANSECT: KPT163		Date Collected: 01/25/94		River Width (ft): 196.0		Distance to Right Edge of Water (ft): 0		
Distance From Right Bank (ft)	Water Depth (ft)	Water Velocity (fps)	Sediment Depth (ft)	Sediment Penetrated (ft)	Sediment Recovered (ft)	Sediment Type	Interval (ft)	Description
20	5.3	0.00	4.20	4.20	4.00	FINE	0-0.33	GREY-BROWN FINE SAND AND SILT
							0.00-1.60	GREY BROWN FINE SAND AND SILT
							1.60-3.30	GREY BROWN FINE TO MEDIUM SAND
							3.30-4.00	GREY BROWN FINE TO COARSE SAND, ORGANIC MATTER, WOOD
60	5.8	0.00	7.00	5.20	5.10	COARSE	0-0.33	GREY BROWN FINE TO COARSE SAND AND SILT
							0.00-1.60	GREY BROWN FINE TO COARSE SAND AND SILT
							1.60-5.10	GREY VERY FINE TO MEDIUM SAND
96	8.4	0.00	5.20	6.70	5.00	FINE	0-0.33	BROWN FINE TO COARSE SAND
							0.00-0.40	BROWN FINE TO COARSE SAND
							0.40-3.00	GREY BROWN FINE TO MEDIUM SAND
							3.00-3.70	DARK GREY FINE SAND AND SILT
							3.70-5.00	GREY FINE AND VERY FINE SAND
136	4.7	0.00	7.20	6.10	5.40	FINE	0-0.33	BROWN FINE TO MEDIUM SAND
							0.00-0.80	BROWN FINE TO MEDIUM SAND
							0.80-2.40	DARK GREY FINE SAND AND SILT
							2.40-2.70	GREY FINE TO COARSE SAND
							2.70-3.30	DARK BROWN TO BLACK SILTY ORGANIC MATTER
							3.30-5.40	DARK GREY FINE SAND WITH ORGANIC MATTER (PIECES OF WOOD)

ALLIED PAPER, INC./PORTAGE CREEK/KALAMAZOO RIVER SUPERFUND SITE
TECHNICAL MEMORANDUM 10
SUMMARY OF SEDIMENT CHARACTERIZATION FIELD OBSERVATIONS

TRANSECT: KPT163		Date Collected: 01/25/94		River Width (ft): 196.0		Distance to Right Edge of Water (ft): 0		
Distance From Right Bank (ft)	Water Depth (ft)	Water Velocity (fps)	Sediment Depth (ft)	Sediment Penetrated (ft)	Sediment Recovered (ft)	Sediment Type	Interval (ft)	Description
173	2.9	0.00	6.10	6.10	5.80	COARSE	0-0.33	GREY-BROWN FINE TO COARSE SAND
							0.00-0.40	GREY BROWN FINE TO COARSE SAND
							0.40-4.00	DARK GREY BROWN FINE TO MEDIUM SAND
							4.00-5.80	GREY FINE TO VERY FINE SAND
205	0.9	0.00	3.50	3.50	2.60	FINE	0-0.33	BROWN FINE SAND
							0.00-0.20	BROWN FINE SAND
							0.20-2.00	DARK GREY FINE SAND AND SILT
							2.00-2.60	DARK GREY BROWN FINE SAND

ALLIED PAPER, INC./PORTAGE CREEK/KALAMAZOO RIVER SUPERFUND SITE
TECHNICAL MEMORANDUM 10
SUMMARY OF SEDIMENT CHARACTERIZATION FIELD OBSERVATIONS

TRANSECT: KPT164		Date Collected: 01/26/94		River Width (ft): 150.0		Distance to Right Edge of Water (ft): 0		
Distance From Right Bank (ft)	Water Depth (ft)	Water Velocity (fps)	Sediment Depth (ft)	Sediment Penetrated (ft)	Sediment Recovered (ft)	Sediment Type	Interval (ft)	Description
34	1.0	0.55	6.30	5.70	4.80	FINE	0-0.33	GREY BROWN FINE SAND
							0.00-1.10	GREY FINE SAND
							1.10-1.60	DARK GREY SILTS
							1.60-4.80	GREY FINE SAND, TRACE OF SILTS AND ORGANIC MATTER
61	6.8	1.50	5.20	3.30	3.30	COARSE	0-0.33	BROWN FINE TO COARSE SAND, FINE GRAVEL
							0.00-3.30	BROWN FINE TO COARSE SAND WITH SOME GRAVEL
86	6.1	2.40	1.30	1.00	0.70	COARSE	0-0.33	BROWN MEDIUM TO COARSE SAND, SOME GRAVEL, TRACE OF FINE SAND
							0.00-0.70	BROWN MEDIUM TO COARSE SAND, SOME GRAVEL, TRACE FINE SAND
114	6.4	2.50	2.30	2.30	1.70	COARSE	0-0.33	BROWN MEDIUM TO COARSE SAND, SOME GRAVEL, TRACE OF FINE SAND
							0.00-0.80	BROWN MEDIUM TO COARSE SAND, SOME GRAVEL, TRACE FINE SAND
							0.80-1.70	DARK GREY FINE TO COARSE SAND
138	6.0	1.50	4.10	4.10	3.90	COARSE	0-0.33	BROWN FINE TO COARSE SAND, SOME GRAVEL
							0.00-1.90	BROWN FINE TO COARSE SAND, SOME GRAVEL
							1.90-2.30	BROWN FINE AND VERY FINE SAND
							2.30-3.90	GREY BROWN FINE TO COARSE SAND
165	4.3	0.60	0.40	0.00	0.00	COARSE	0-0.33	LIGHT BROWN FINE TO COARSE SAND, SOME FINE SAND

ALLIED PAPER, INC./PORTAGE CREEK/KALAMAZOO RIVER SUPERFUND SITE
TECHNICAL MEMORANDUM 10
SUMMARY OF SEDIMENT CHARACTERIZATION FIELD OBSERVATIONS

TRANSECT: KPT165		Date Collected: 01/26/94		River Width (ft): 144.0		Distance to Right Edge of Water (ft): 0		
Distance From Right Bank (ft)	Water Depth (ft)	Water Velocity (fps)	Sediment Depth (ft)	Sediment Penetrated (ft)	Sediment Recovered (ft)	Sediment Type	Interval (ft)	Description
18	6.8	0.00	6.00	6.00	5.00	FINE	0-0.33	BROWN FINE SAND, TRACE MEDIUM SAND AND ORGANICS
							0.00-0.70	BROWN FINE SAND, TRACE OF MEDIUM SAND AND ORGANICS
							0.70-1.30	GREY FINE TO COARSE SAND
							1.30-2.10	GREY FINE-COARSE SAND, SOME SILTS & ORGANIC MATTER (WOOD)
							2.10-5.00	GREY BROWN FINE TO MEDIUM SAND
43	10.9	0.00	5.80	5.80	4.40	COARSE	0-0.33	GREY BROWN FINE TO COARSE SAND, TRACE OF SILT
							0.00-1.70	GREY BROWN FINE TO COARSE SAND, TRACE OF SILT
							1.70-4.40	GREY BROWN FINE TO COARSE SAND
70	9.2	0.00	6.60	5.80	5.10	COARSE	0-0.33	BROWN FINE TO COARSE SAND
							0.00-1.80	BROWN FINE TO COARSE SAND
							1.80-5.10	GREY BROWN FINE-COARSE SAND, SILT & ORGANIC MATTER (WOOD)
93	7.2	0.00	6.80	6.30	5.00	FINE	0-0.33	BROWN FINE TO MEDIUM SAND
							0.00-2.30	BROWN FINE TO MEDIUM SAND
							2.30-5.00	GREY BROWN FINE TO MEDIUM SAND, SOME ORGANIC MATTER- WOOD
116	5.8	0.00	5.40	5.30	5.10	FINE	0-0.33	GREY BROWN FINE SAND
							0.00-0.70	GREY BROWN FINE SAND
							0.70-4.20	DARK GREY BROWN FINE SAND
							4.20-5.10	BROWN PIECE OF WOOD WITH SOME GREY FINE SAND

ALLIED PAPER, INC./PORTAGE CREEK/KALAMAZOO RIVER SUPERFUND SITE
 TECHNICAL MEMORANDUM 10
 SUMMARY OF SEDIMENT CHARACTERIZATION FIELD OBSERVATIONS

TRANSECT: KPT165		Date Collected: 01/26/94		River Width (ft): 144.0		Distance to Right Edge of Water (ft): 0		
Distance From Right Bank (ft)	Water Depth (ft)	Water Velocity (fps)	Sediment Depth (ft)	Sediment Penetrated (ft)	Sediment Recovered (ft)	Sediment Type	Interval (ft)	Description
137	0.7	0.00	10.00	10.00	7.20	FINE	0-0.33	DARK GREY FINE SAND WITH SILTS
							0.00-3.70	DARK GREY FINE SAND WITH SILTS
							3.70-4.70	GREY FINE SAND
							4.70-7.20	GREY BROWN FINE SAND, SOME COARSE SAND AND ORGANIC MATTER

ALLIED PAPER, INC./PORTAGE CREEK/KALAMAZOO RIVER SUPERFUND SITE
TECHNICAL MEMORANDUM 10
SUMMARY OF SEDIMENT CHARACTERIZATION FIELD OBSERVATIONS

TRANSECT: KPT166		Date Collected: 01/26/94		River Width (ft): 151.0		Distance to Right Edge of Water (ft): 0		
Distance From Right Bank (ft)	Water Depth (ft)	Water Velocity (fps)	Sediment Depth (ft)	Sediment Penetrated (ft)	Sediment Recovered (ft)	Sediment Type	Interval (ft)	Description
25	3.8	0.00	3.30	3.30	2.70	FINE	0-0.33	BROWN FINE SAND, SOME ORGANIC MATTER
							0.00-0.40	BROWN FINE SAND, SOME ORGANIC MATTER
							0.40-0.70	DARK GREY FINE SAND WITH SILTS
							0.70-1.20	GREY FINE SAND
							1.20-1.40	GREY BROWN PIECE OF WOOD
							1.40-2.10	GREY FINE SAND
							2.10-2.70	GREY FINE SAND WITH PIECES OF WOOD
50	5.2	0.00	6.80	6.80	5.00	FINE	0-0.33	GREY BROWN FINE SAND
							0.00-1.60	GREY BROWN FINE SAND
							1.60-3.00	DARK GREY BROWN FINE TO MEDIUM SAND
							3.00-5.00	GREY BROWN SILT
78	7.8	0.00	4.40	4.40	3.10	COARSE	0-0.33	GREY BROWN FINE TO COARSE SAND
							0.00-0.90	GREY BROWN FINE TO COARSE SAND
							0.90-3.10	DARK GREY FINE TO COARSE SAND, SOME SILTS
103	7.8	0.00	5.30	5.30	4.00	FINE	0-0.33	BROWN FINE TO MEDIUM SAND
							0.00-0.70	BROWN FINE TO MEDIUM SAND
							0.70-1.50	GREY BROWN FINE TO MEDIUM SAND
							1.50-4.00	LIGHT BROWN FINE TO VERY FINE SAND

ALLIED PAPER, INC./PORTAGE CREEK/KALAMAZOO RIVER SUPERFUND SITE
TECHNICAL MEMORANDUM 10
SUMMARY OF SEDIMENT CHARACTERIZATION FIELD OBSERVATIONS

TRANSECT: KPT166		Date Collected: 01/26/94		River Width (ft): 151.0		Distance to Right Edge of Water (ft): 0		
Distance From Right Bank (ft)	Water Depth (ft)	Water Velocity (fps)	Sediment Depth (ft)	Sediment Penetrated (ft)	Sediment Recovered (ft)	Sediment Type	Interval (ft)	Description
128	6.4	0.00	2.20	2.20	1.40	COARSE	0-0.33	GREY BROWN FINE TO COARSE SAND
							0.00-1.00	GREY BROWN FINE TO COARSE SAND
							1.00-1.40	LIGHT BROWN FINE TO VERY FINE SAND
152	3.9	0.00	2.00	1.10	0.90	FINE	0-0.33	LIGHT BROWN FINE TO VERY FINE SAND
							0.00-0.90	LIGHT BROWN FINE TO VERY FINE SAND

ALLIED PAPER, INC./PORTAGE CREEK/KALAMAZOO RIVER SUPERFUND SITE
 TECHNICAL MEMORANDUM 10
 SUMMARY OF SEDIMENT CHARACTERIZATION FIELD OBSERVATIONS

TRANSECT: PPT1		Date Collected: 09/01/93		River Width (ft): 46.0		Distance to Right Edge of Water (ft): 0		
Distance From Right Bank (ft)	Water Depth (ft)	Water Velocity (fps)	Sediment Depth (ft)	Sediment Penetrated (ft)	Sediment Recovered (ft)	Sediment Type	Interval (ft)	Description
10	2.2	0.15	5.90	4.00	2.80	FINE	0-0.33	GREY SILTY MATERIAL, ORGANIC MATTER, STRONG ORGANIC ODOR
							0.00-0.20	DARK SILT AND ORGANIC MATTER
							0.20-2.80	GREY SILTY MATERIAL
25	2.8	0.85	7.00	5.90	3.60	FINE	0-0.33	BROWN FINE SAND
							0.00-0.70	BROWN FINE SAND
							0.70-2.90	GREY FINE SAND AND SILT
							2.90-3.10	BROWN PEAT
							3.10-3.60	GREY FINE SAND AND SILT
40	1.7	0.20	6.60	8.80	4.80	FINE	0-0.33	DARK BROWN SILT AND ORGANIC MATTER WITH SOME FINE SAND
							0.00-0.50	DARK BROWN SILT AND ORGANIC MATTER WITH FINE SAND
							0.50-1.40	GREY FINE TO MEDIUM SAND
							1.40-2.40	GREY SILT AND FINE SAND
							2.40-4.80	GREY-BROWN FINE TO COARSE SAND
47	1.8	0.35	5.20	5.00	2.50	FINE	0-0.33	DARK BROWN SILT AND ORGANIC MATTER
							0.00-0.50	DARK BROWN SILT AND ORGANIC MATTER
							0.50-2.50	GREY SILTY MATERIAL

ALLIED PAPER, INC./PORTAGE CREEK/KALAMAZOO RIVER SUPERFUND SITE
TECHNICAL MEMORANDUM 10
SUMMARY OF SEDIMENT CHARACTERIZATION FIELD OBSERVATIONS

TRANSECT: PPT2		Date Collected: 09/01/93		River Width (ft): 33.0		Distance to Right Edge of Water (ft): 0		
Distance From Right Bank (ft)	Water Depth (ft)	Water Velocity (fps)	Sediment Depth (ft)	Sediment Penetrated (ft)	Sediment Recovered (ft)	Sediment Type	Interval (ft)	Description
10	2.0	0.00	4.80	4.20	2.50	FINE	0-0.33	BROWN FINE SAND
							0.00-0.80	BROWN FINE SAND
							0.80-1.50	GREY SILT AND FINE SAND
							1.50-2.50	GREY FINE TO MEDIUM SAND AND ORGANIC MATTER
20	5.3	0.00	2.70	2.70	2.30	FINE	0-0.33	BROWN FINE TO MEDIUM SAND, SOME ORGANIC MATTER
							0.00-1.40	GREY-BROWN FINE TO MEDIUM SAND, SOME ORGANIC MATTER
							1.40-2.30	BLACK SILT AND ORGANIC MATTER
28	7.6	0.00	0.40	0.40	0.00	COARSE	0-0.33	GREY FINE TO COARSE SAND AND GRAVEL
34	3.0	0.00	1.10	1.10	0.80	FINE	0-0.33	DARK GREY-BROWN FINE SAND AND SILT, SOME GRAVEL, STRONG ORGANIC ODOR
							0.00-0.80	DARK GREY-BROWN FINE SAND AND SILT, SOME GRAVEL

ALLIED PAPER, INC./PORTAGE CREEK/KALAMAZOO RIVER SUPERFUND SITE
 TECHNICAL MEMORANDUM 10
 SUMMARY OF SEDIMENT CHARACTERIZATION FIELD OBSERVATIONS

TRANSECT: PPT3		Date Collected: 09/01/93		River Width (ft): 31.0		Distance to Right Edge of Water (ft): 0		
Distance From Right Bank (ft)	Water Depth (ft)	Water Velocity (fps)	Sediment Depth (ft)	Sediment Penetrated (ft)	Sediment Recovered (ft)	Sediment Type	Interval (ft)	Description
9	1.0	0.00	2.70	2.40	1.40	FINE	0-0.33	GREY-BROWN FINE SAND, SOME SILT AND SOME ORGANIC MATTER
							0.00-1.40	GREY-BROWN FINE SAND, SOME SILT AND SOME ORGANIC MATTER
21	2.2	0.00	3.50	3.50	1.90	COARSE	0-0.33	GREY-BROWN FINE TO COARSE SAND, SOME GRAVEL
							0.00-0.40	GREY-BROWN FINE TO COARSE SAND, SOME GRAVEL
							0.40-1.30	GREY FINE SAND, SOME SILT
							1.30-1.90	GREY-BROWN FINE TO MEDIUM SAND
31	1.6	0.00	2.40	2.40	1.70	FINE	0-0.33	GREY-BROWN SILTY FINE SAND, SOME GRAVEL AND ORGANICS, MODERATE ORGANIC ODOR
							0.00-1.70	GREY-BROWN SILT & FINE SAND, SOME GRAVEL & ORGANIC MATTER

ALLIED PAPER, INC./PORTAGE CREEK/KALAMAZOO RIVER SUPERFUND SITE
 TECHNICAL MEMORANDUM 10
 SUMMARY OF SEDIMENT CHARACTERIZATION FIELD OBSERVATIONS

TRANSECT: PPT4		Date Collected: 09/01/93		River Width (ft): 35.0		Distance to Right Edge of Water (ft): 0		
Distance From Right Bank (ft)	Water Depth (ft)	Water Velocity (fps)	Sediment Depth (ft)	Sediment Penetrated (ft)	Sediment Recovered (ft)	Sediment Type	Interval (ft)	Description
10	1.7	0.95	5.20	4.50	3.00	FINE	0-0.33	GREY-BROWN FINE TO MEDIUM SAND, SOME ORGANIC MATTER
							0.00-0.80	GREY-BROWN FINE TO MEDIUM SAND, SOME ORGANIC MATTER
							0.80-2.00	DARK GREY FINE TO MEDIUM SAND AND SILT
							2.00-3.00	LIGHT GREY-BROWN FINE TO MEDIUM SAND
19	2.1	1.20	3.70	2.70	1.50	FINE	0-0.33	GREY-BROWN FINE SAND, SOME ORGANIC MATTER
							0.00-0.40	GREY-BROWN FINE SAND, SOME ORGANIC MATTER
							0.40-1.50	DARK GREY FINE TO MEDIUM SAND, SOME SILT
34	2.5	0.83	4.80	4.80	3.90	COARSE	0-0.33	GREY-BROWN FINE TO COARSE SAND, SOME SILT AND SOME ORGANIC MATTER
							0.00-0.30	GREY-BROWN FINE TO MEDIUM SAND, SOME ORGANIC MATTER
							0.30-1.50	GREY FINE SAND AND SILT
							1.50-3.90	GREY-BROWN FINE TO COARSE SAND

ALLIED PAPER, INC./PORTAGE CREEK/KALAMAZOO RIVER SUPERFUND SITE
TECHNICAL MEMORANDUM 10
SUMMARY OF SEDIMENT CHARACTERIZATION FIELD OBSERVATIONS

TRANSECT: PPT5		Date Collected: 09/01/93		River Width (ft): 46.0		Distance to Right Edge of Water (ft): 0		
Distance From Right Bank (ft)	Water Depth (ft)	Water Velocity (fps)	Sediment Depth (ft)	Sediment Penetrated (ft)	Sediment Recovered (ft)	Sediment Type	Interval (ft)	Description
21	1.4	0.00	8.00	6.70	4.40	FINE	0-0.33	GREY-BROWN FINE SAND, SOME ORGANIC MATTER
							0.00-0.70	GREY-BROWN FINE SAND, SOME ORGANIC MATTER
							0.70-1.90	FINE SAND AND SILT
							1.90-4.40	LIGHT GREY-BROWN VERY FINE TO COARSE SAND
29	0.7	0.00	6.70	6.00	4.00	FINE	0-0.33	GREY-BROWN FINE SAND
							0.00-1.00	GREY-BROWN FINE SAND
							1.00-4.00	LIGHT GREY-BROWN FINE TO MEDIUM SAND WITH SOME SILT
41	1.9	0.00	5.20	5.20	3.80	FINE	0-0.33	GREY-BROWN FINE SAND, SOME MEDIUM SAND
							0.00-0.60	GREY-BROWN FINE SAND, SOME MEDIUM SAND
							0.60-1.40	DARK GREY FINE SAND AND SILT
							1.40-2.80	BROWN FINE SAND AND SILT
							2.80-3.80	LIGHT GREY-BROWN VERY FINE TO MEDIUM SAND
56	1.2	0.00	2.90	2.10	1.60	COARSE	0-0.33	GREY-BROWN FINE SAND AND GRAVEL, SOME ORGANIC MATTER
							0.00-0.60	GREY-BROWN FINE SAND AND GRAVEL, SOME ORGANIC MATTER
							0.60-1.60	BROWN FINE TO MEDIUM SAND AND SILT

ALLIED PAPER, INC./PORTAGE CREEK/KALAMASOO RIVER SUPERFUND SITE
 TECHNICAL MEMORANDUM 10
 SUMMARY OF SEDIMENT CHARACTERIZATION FIELD OBSERVATIONS

TRANSECT: PPT6		Date Collected: 09/01/93		River Width (ft): 30.0		Distance to Right Edge of Water (ft): 0		
Distance From Right Bank (ft)	Water Depth (ft)	Water Velocity (fps)	Sediment Depth (ft)	Sediment Penetrated (ft)	Sediment Recovered (ft)	Sediment Type	Interval (ft)	Description
10	1.0	0.00	2.10	1.80	1.30	COARSE	0-0.33	GREY-BROWN FINE TO COARSE SAND WITH ORGANIC MATTER
							0.00-0.30	GREY-BROWN FINE TO COARSE SAND WITH ORGANIC MATTER
							0.30-1.30	GREY-BROWN FINE TO MEDIUM SAND AND SILT
21	2.0	0.00	3.40	3.40	2.40	COARSE	0-0.33	GREY-BROWN FINE TO COARSE SAND WITH ORGANIC MATTER, SOME GRAVEL
							0.00-0.40	GREY-BROWN FINE-COARSE SAND & ORGANIC MATTER, SOME GRAVEL
							0.40-1.60	DARK GREY FINE SAND WITH SOME SILT
							1.60-2.40	GREY FINE AND VERY FINE SAND
29	2.7	0.00	5.60	5.60	5.20	COARSE	0-0.33	BROWN FINE TO COARSE SAND WITH SOME GRAVEL
							0.00-0.90	BROWN FINE TO COARSE SAND WITH SOME GRAVEL
							0.90-1.60	DARK GREY FINE SAND AND SILT
							1.60-2.90	BROWN FINE TO COARSE SAND WITH SOME SILT
							2.90-3.70	LIGHT GREY-BROWN FINE TO MEDIUM SAND
							3.70-4.40	DARK GREY FINE TO MEDIUM SAND WITH SOME SILT
							4.40-5.20	LIGHT BROWN FINE TO COARSE SAND

APPENDIX B

Transect Cross-Sections

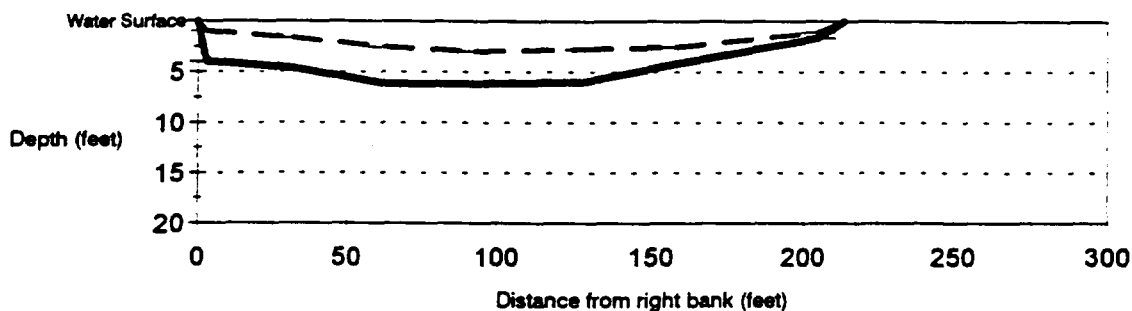


The following Kalamazoo River transect cross-sections represent a schematic depiction of channel characteristics based on measured water and sediment depths at points across the river. The cross-sections are referenced to the right edge of water looking upstream and are based on surveyed distances of sampling locations. The horizontal scale varies according to longitudinal fluctuations of the river's width and islands are included where observed. Note that there is no transect KPT144 and that transect KPT115A is represented here as KPT115.5.

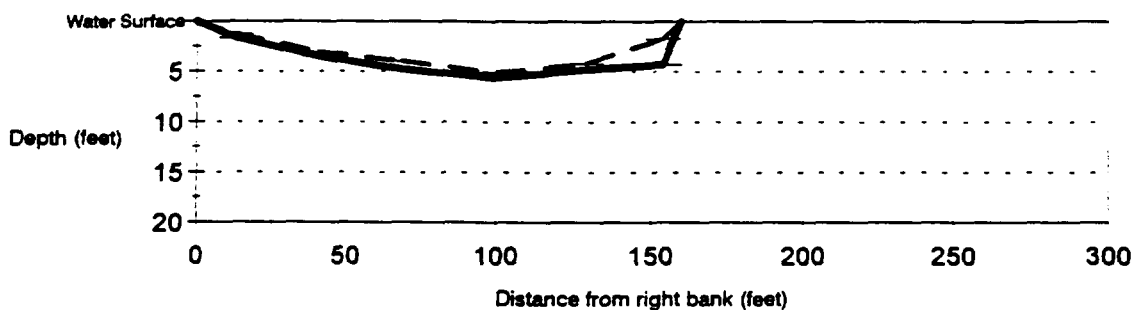
<u>Cross-Sections</u>	<u>Horizontal Scale</u>	<u>Page</u>
KPT1 - KPT4	0 - 300 feet	B-1
KPT5 - KPT8	0 - 300 feet	B-2
KPT9 - KPT12	0 - 600 feet	B-3
KPT13 - KPT16	0 - 600 feet	B-4
KPT17 - KPT20	0 - 300 feet	B-5
KPT21 - KPT24	0 - 300 feet	B-6
KPT25 - KPT28	0 - 300 feet	B-7
KPT29 - KPT32	0 - 600 feet	B-8
KPT33 - KPT36	0 - 600 feet	B-9
KPT37 - KPT40	0 - 300 feet	B-10
KPT41 - KPT44	0 - 300 feet	B-11
KPT45 - KPT48	0 - 300 feet	B-12
KPT49 - KPT52	0 - 300 feet	B-13
KPT53 - KPT56	0 - 300 feet	B-14
KPT57 - KPT60	0 - 300 feet	B-15
KPT61 - KPT64	0 - 300 feet	B-16
KPT65 - KPT68	0 - 600 feet	B-17
KPT69 - KPT72	0 - 1200 feet	B-18
KPT73 - KPT76	0 - 1200 feet	B-19
KPT77 - KPT80	0 - 600 feet	B-20
KPT81 - KPT84	0 - 300 feet	B-21
KPT85 - KPT88	0 - 300 feet	B-22
KPT89 - KPT92	0 - 300 feet	B-23
KPT93 - KPT96	0 - 600 feet	B-24
KPT97 - KPT100	0 - 300 feet	B-25
KPT101 - KPT104	0 - 300 feet	B-26
KPT105 - KPT108	0 - 1500 feet	B-27
KPT109 - KPT112	0 - 300 feet	B-28
KPT113 - KPT115.5	0 - 300 feet	B-29
KPT116 - KPT119	0 - 300 feet	B-30
KPT120 - KPT123	0 - 300 feet	B-31
KPT124 - KPT127	0 - 300 feet	B-32
KPT128 - KPT131	0 - 600 feet	B-33
KPT132 - KPT135	0 - 1800 feet	B-34
KPT136 - KPT139	0 - 1800 feet	B-35
KPT140 - KPT143	0 - 1200 feet	B-36
KPT145 - KPT148	0 - 1500 feet	B-37
KPT149 - KPT152	0 - 2400 feet	B-38
KPT153 - KPT156	0 - 3000 feet	B-39
KPT157 - KPT160	0 - 5400 feet	B-40
KPT161 - KPT164	0 - 300 feet	B-41
KPT165 - KPT168	0 - 300 feet	B-42
KPT169 - KPT171	0 - 300 feet	B-43
PPT1 - PPT4	0 - 100 feet	B-44
PPT5 - PPT8	0 - 100 feet	B-45
PPT9 - PPT12	0 - 100 feet	B-46
PPT13 - PPT15	0 - 100 feet	B-47

Sediment Characterization and Geostatistical Pilot Study
Appendix B - Kalamazoo River Transect Cross-Sections

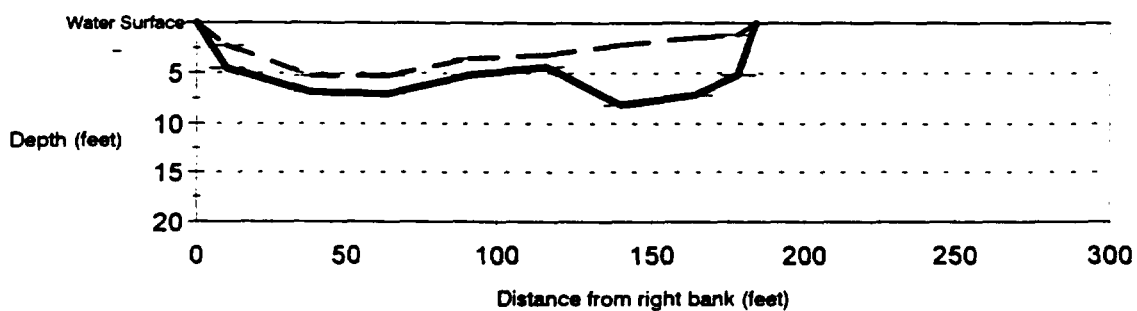
KPT1



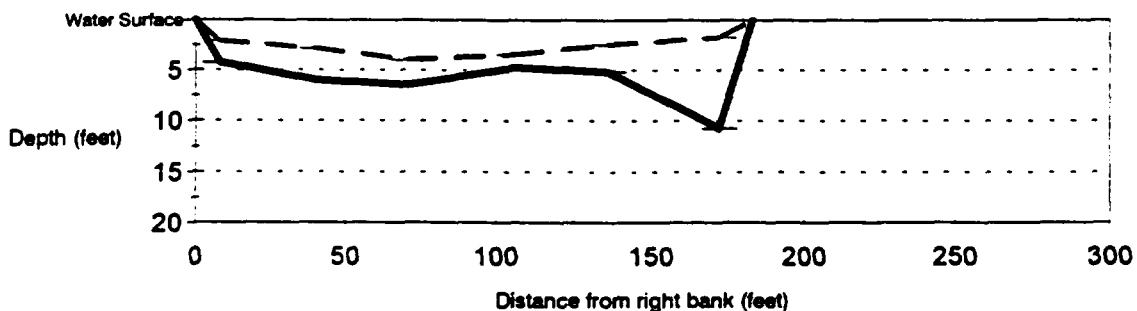
KPT2



KPT3



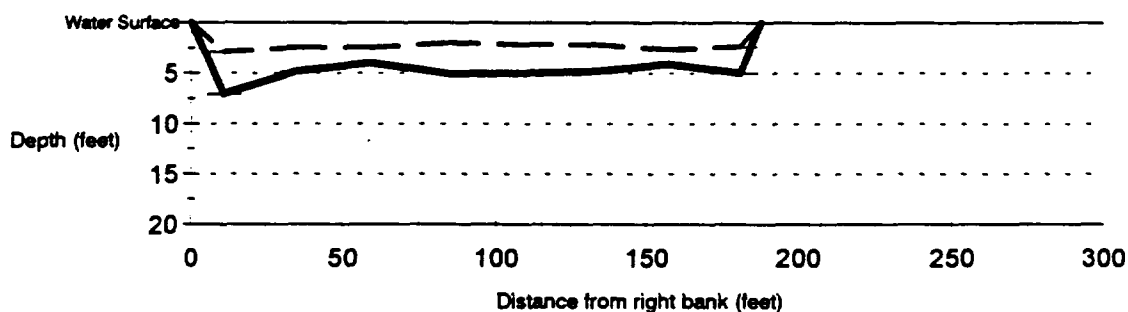
KPT4



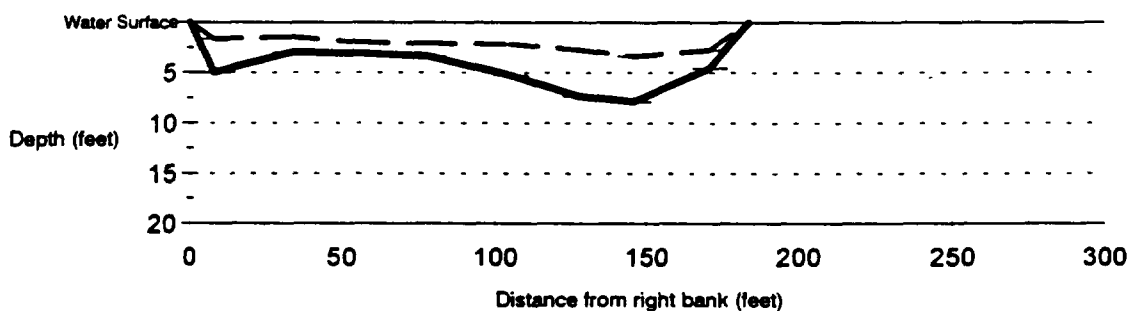
--- Top of Sediment — Bottom of Sediment

Sediment Characterization and Geostatistical Pilot Study
Appendix B - Kalamazoo River Transect Cross-Sections

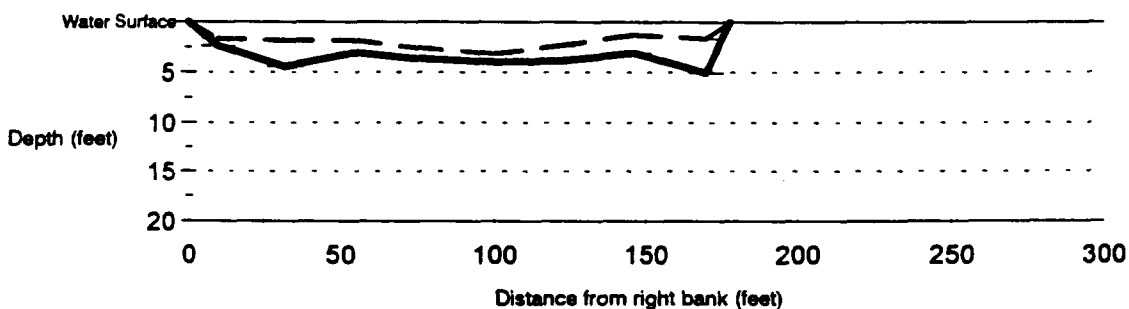
KPT5



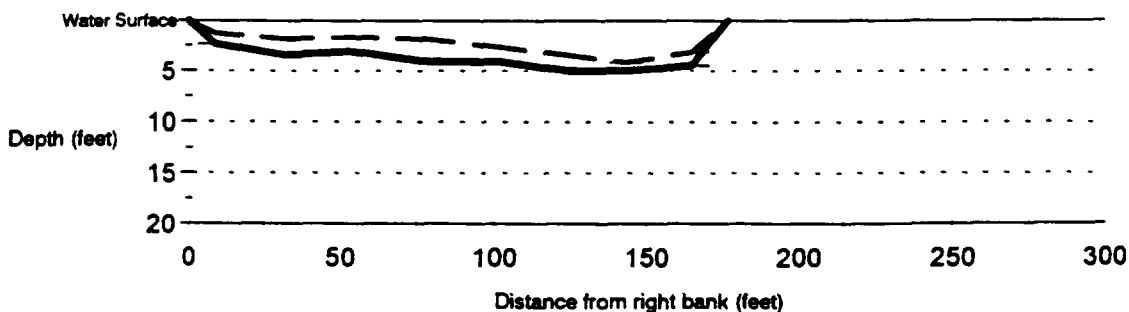
KPT6



KPT7



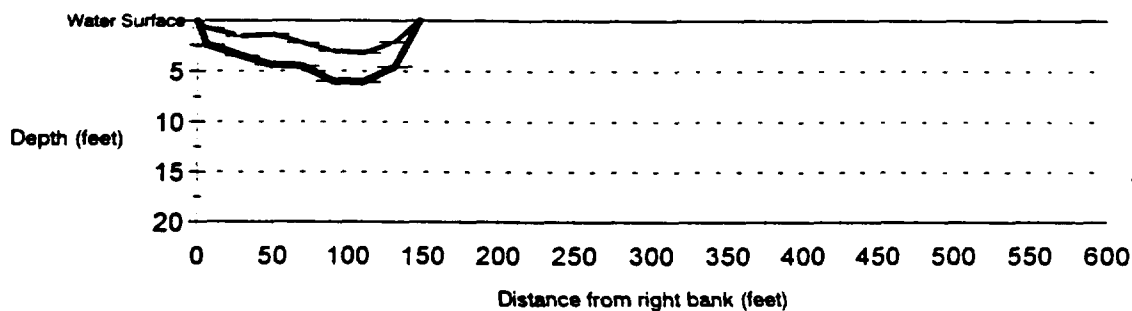
KPT8



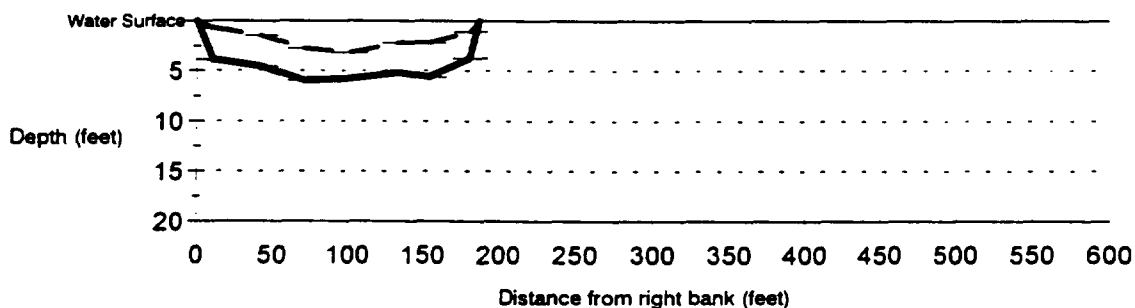
--- Top of Sediment — Bottom of Sediment

Sediment Characterization and Geostatistical Pilot Study
Appendix B - Kalamazoo River Transect Cross-Sections

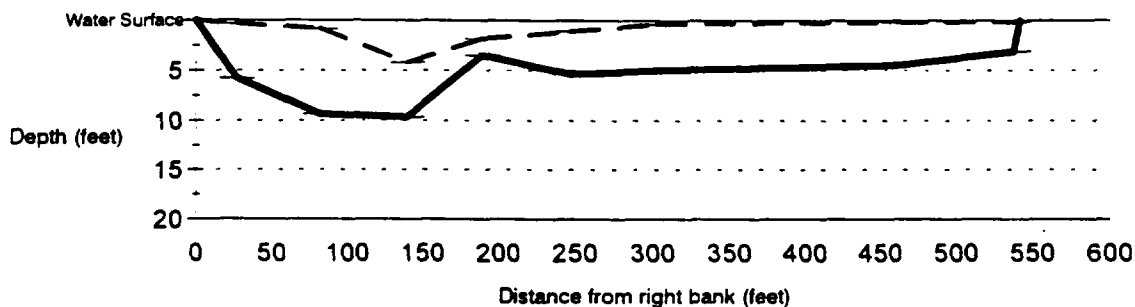
KPT9



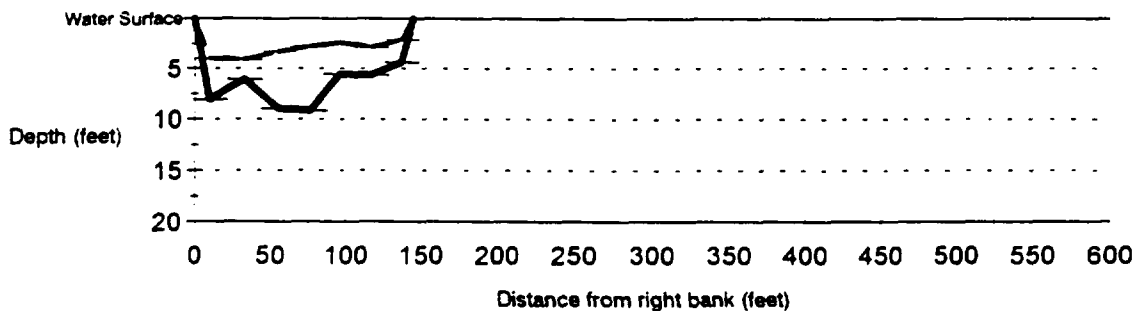
KPT10



KPT11



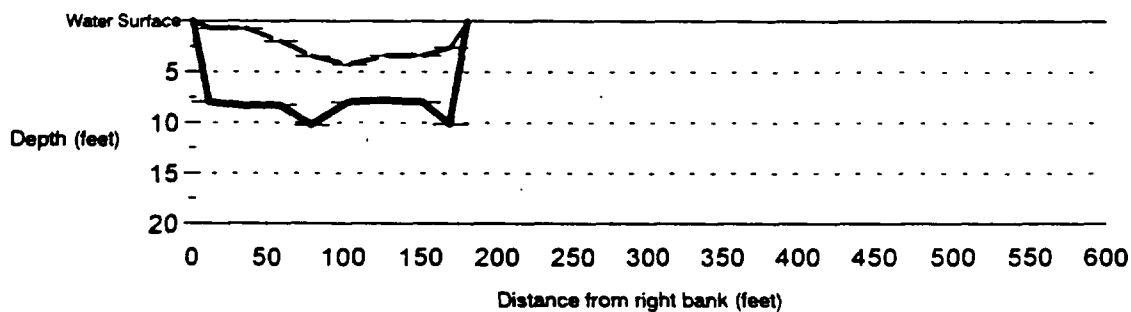
KPT12



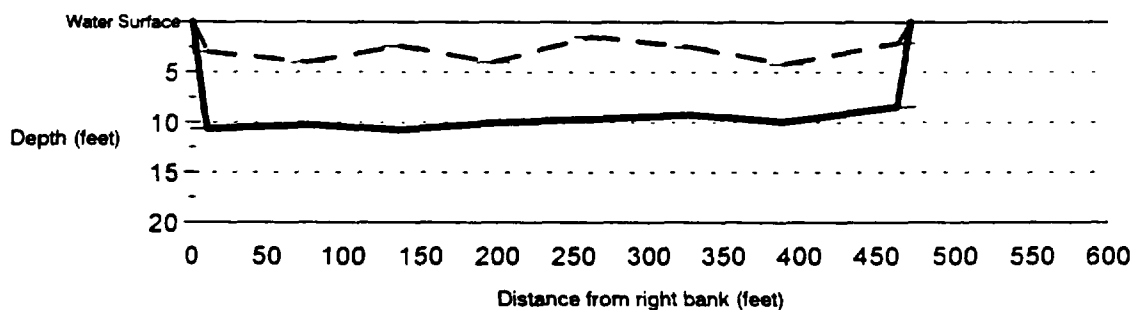
--- Top of Sediment — Bottom of Sediment

Sediment Characterization and Geostatistical Pilot Study
Appendix B - Kalamazoo River Transect Cross-Sections

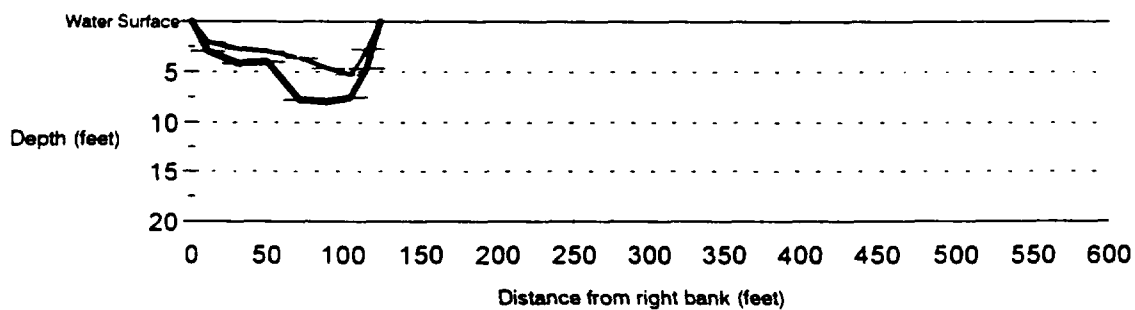
KPT13



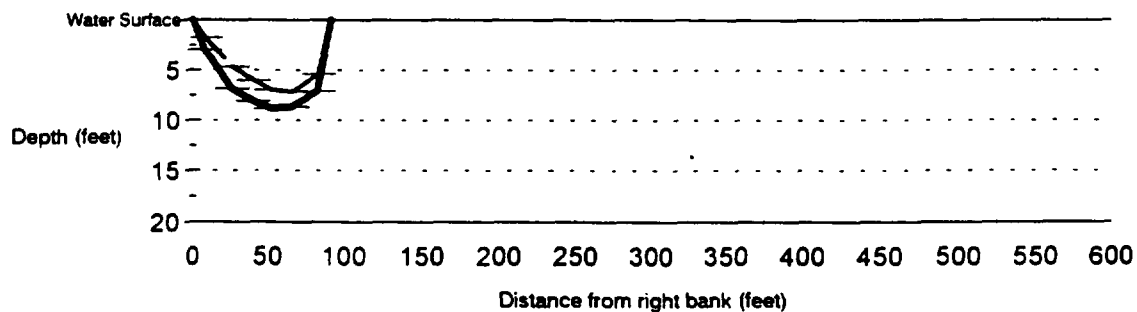
KPT14



KPT15



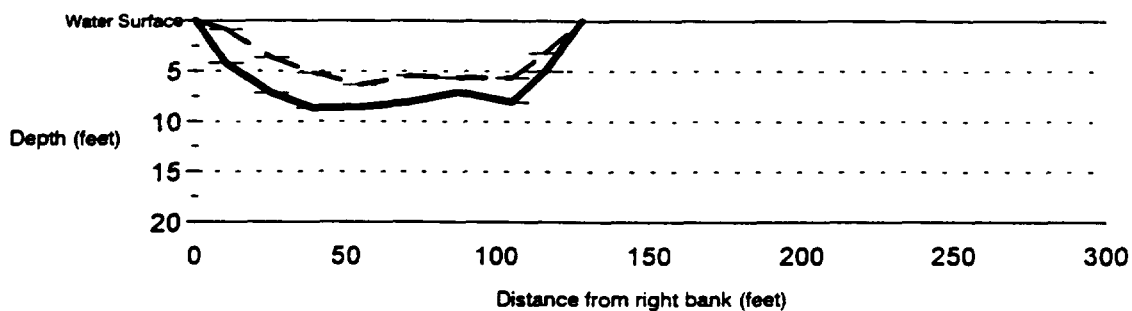
KPT16



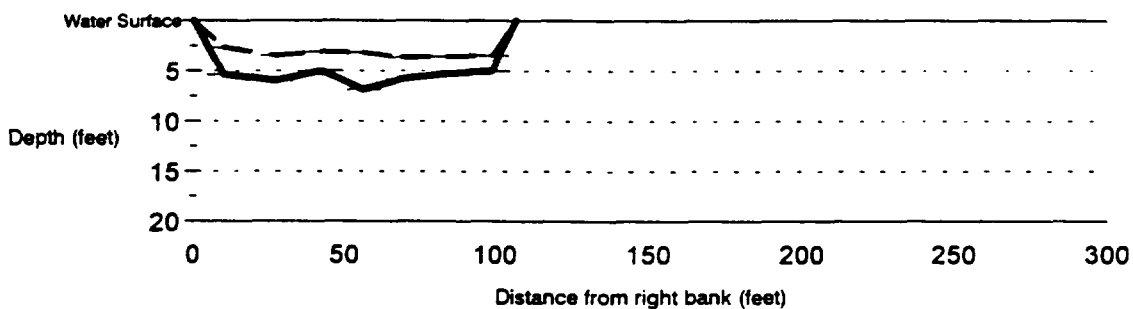
--- Top of Sediment — Bottom of Sediment

Sediment Characterization and Geostatistical Pilot Study
Appendix B - Kalamazoo River Transect Cross-Sections

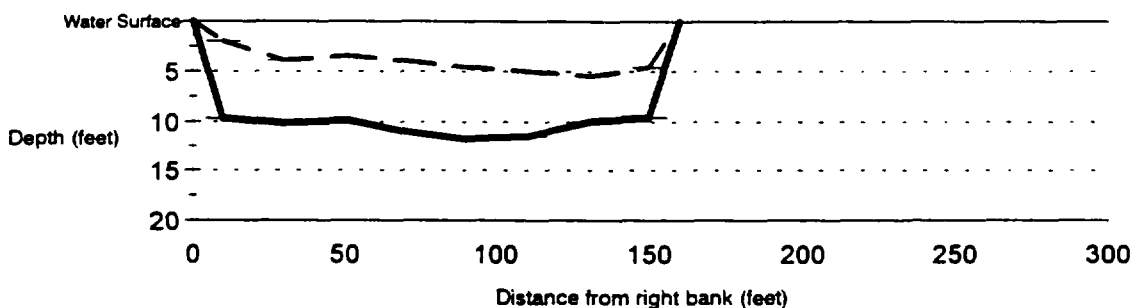
KPT17



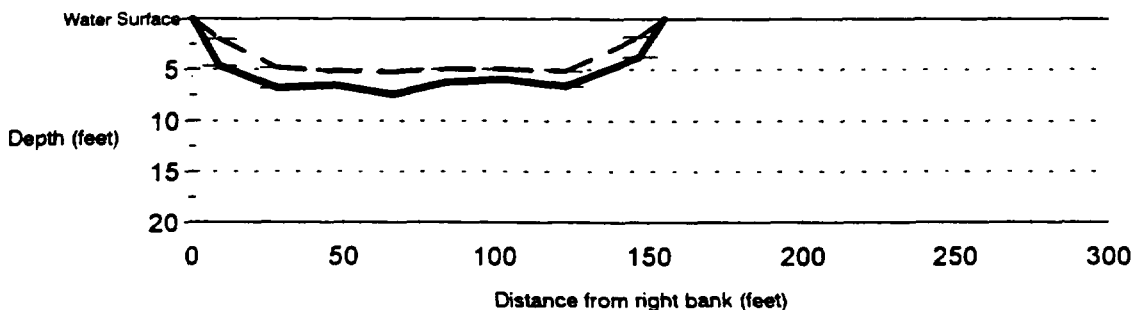
KPT18



KPT19



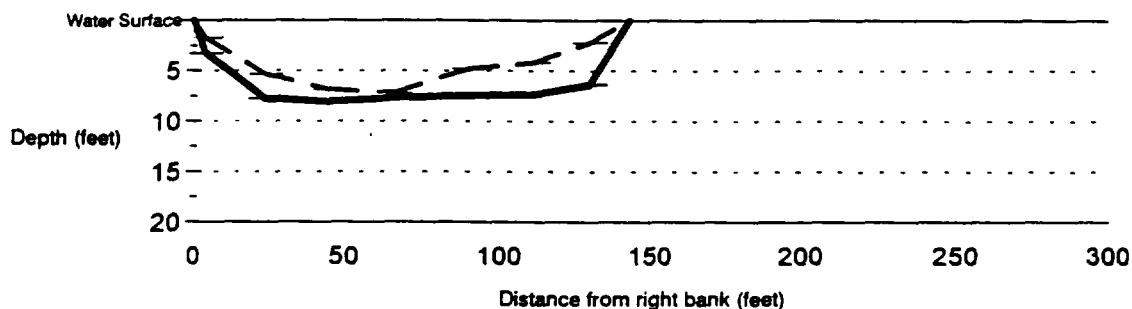
KPT20



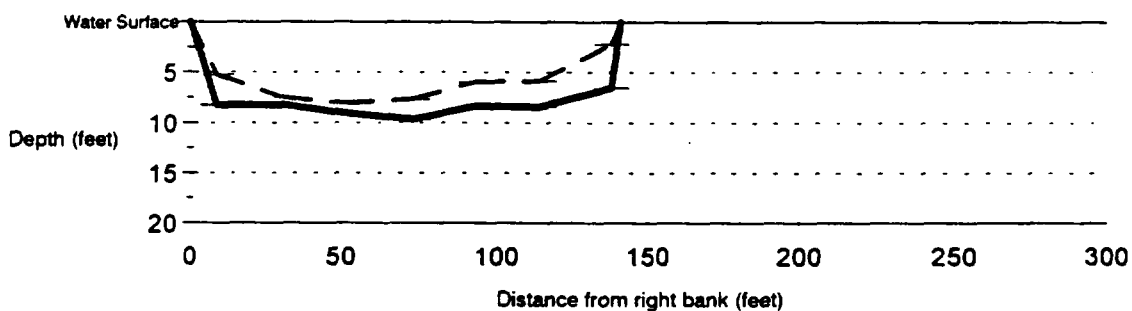
--- Top of Sediment — Bottom of Sediment

Sediment Characterization and Geostatistical Pilot Study
Appendix B - Kalamazoo River Transect Cross-Sections

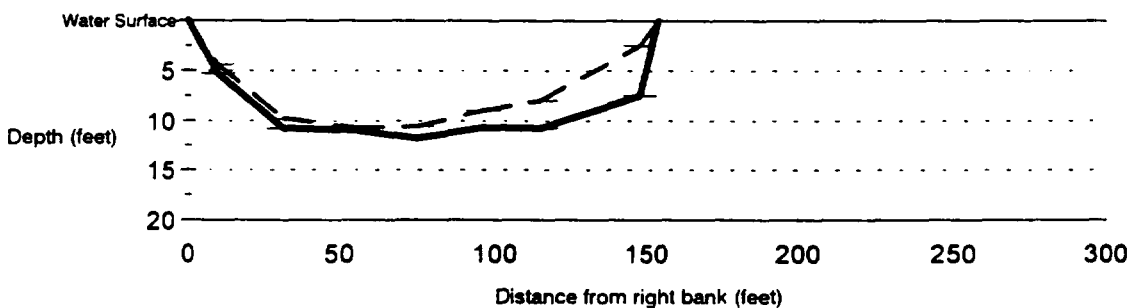
KPT21



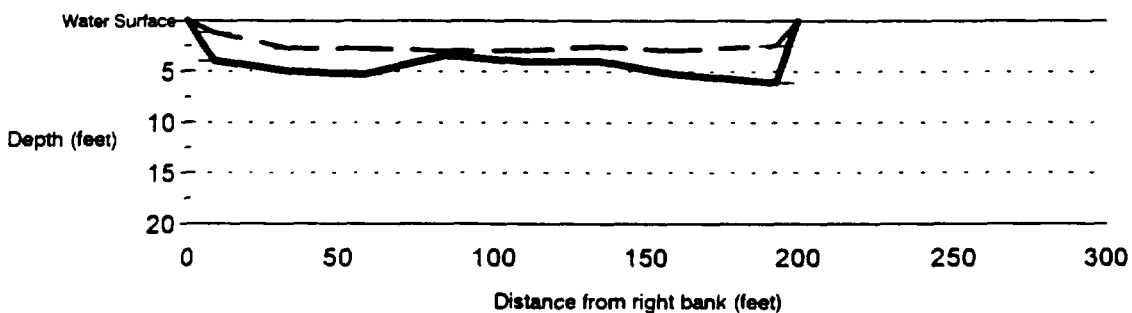
KPT22



KPT23



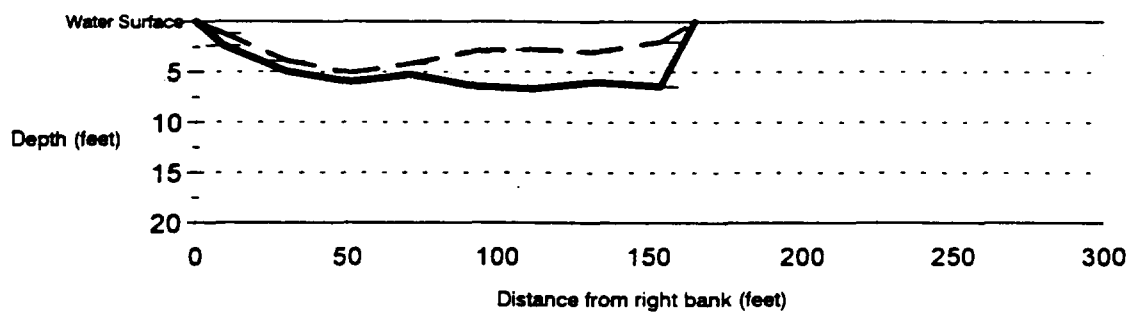
KPT24



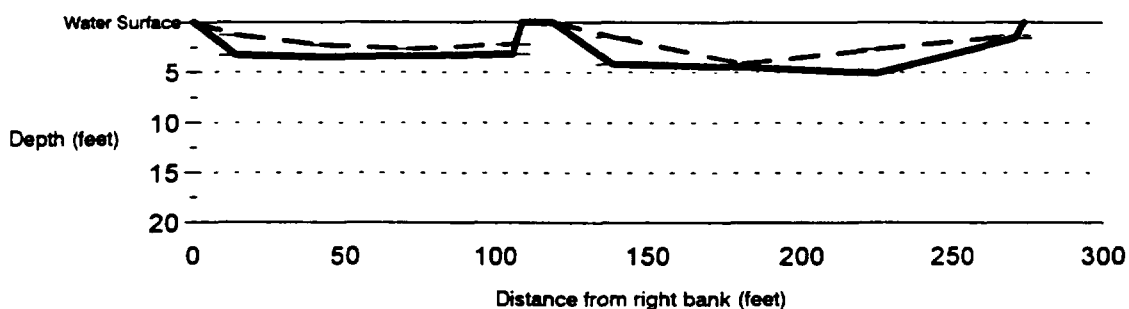
--- Top of Sediment — Bottom of Sediment

Sediment Characterization and Geostatistical Pilot Study
Appendix B - Kalamazoo River Transect Cross-Sections

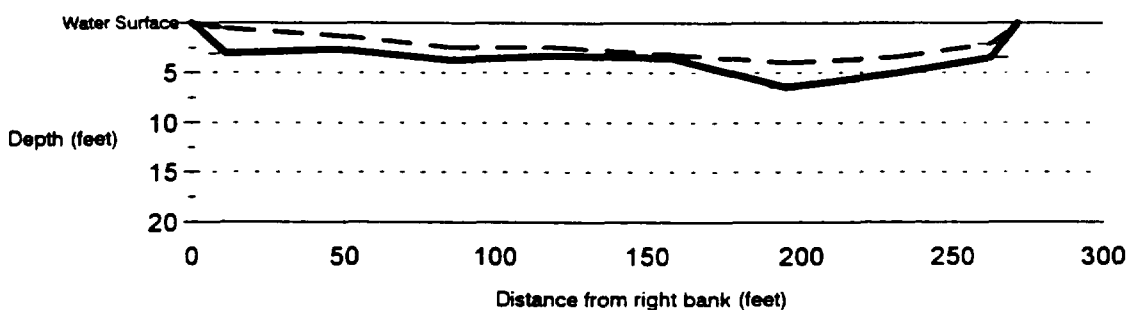
KPT25



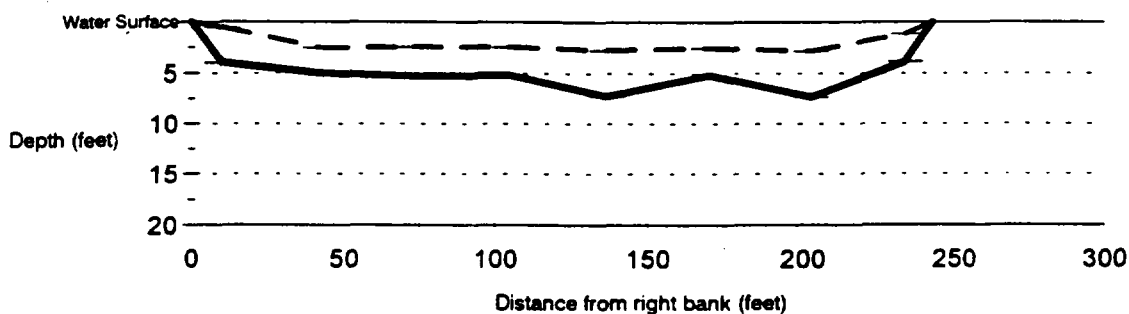
KPT26



KPT27



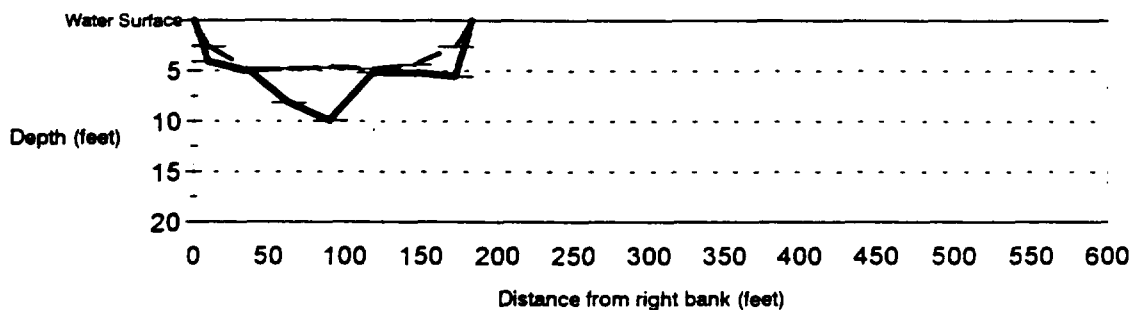
KPT28



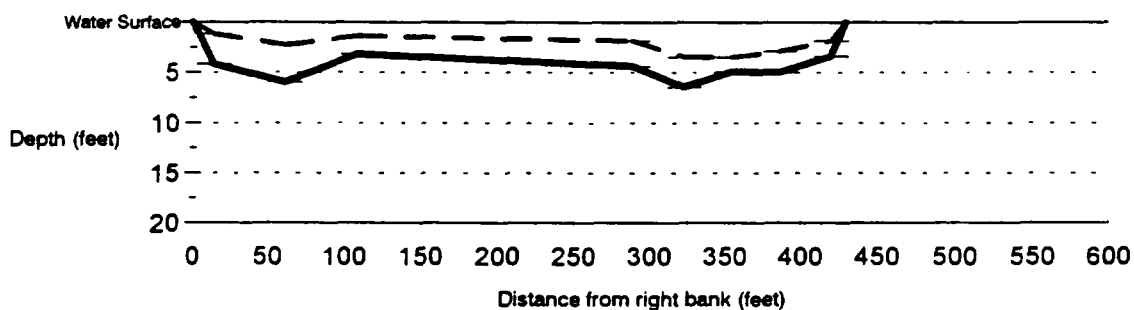
--- Top of Sediment — Bottom of Sediment

Sediment Characterization and Geostatistical Pilot Study
Appendix B - Kalamazoo River Transect Cross-Sections

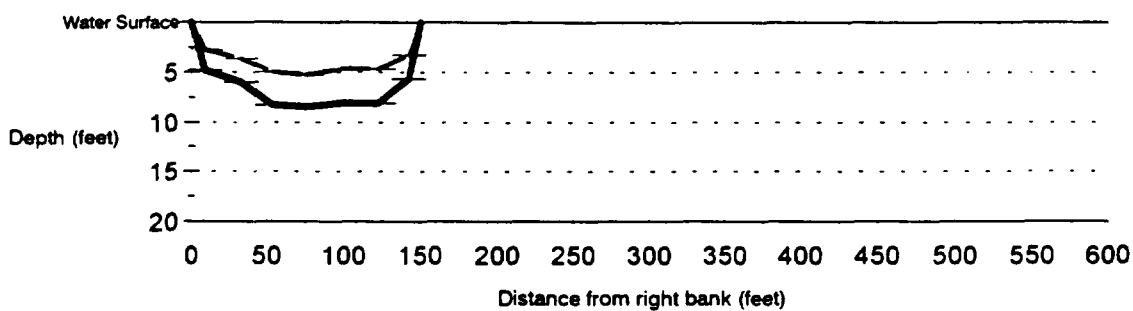
KPT29



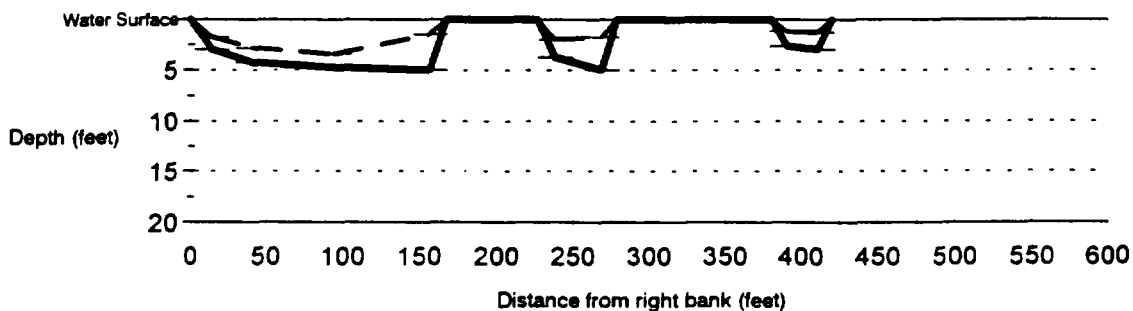
KPT30



KPT31



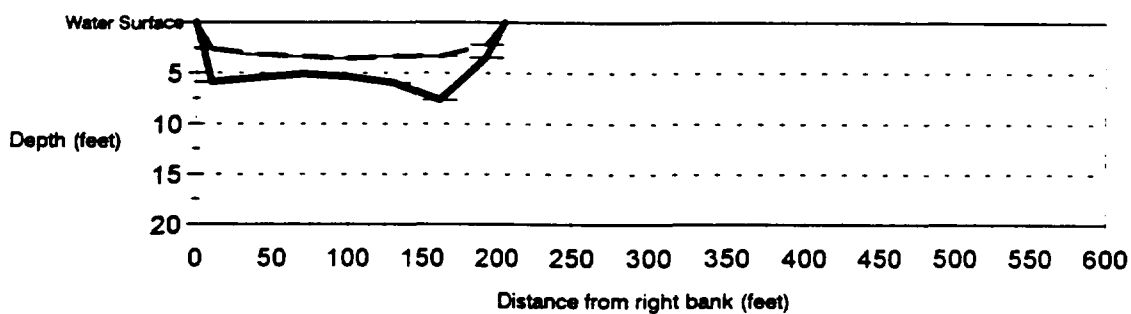
KPT32



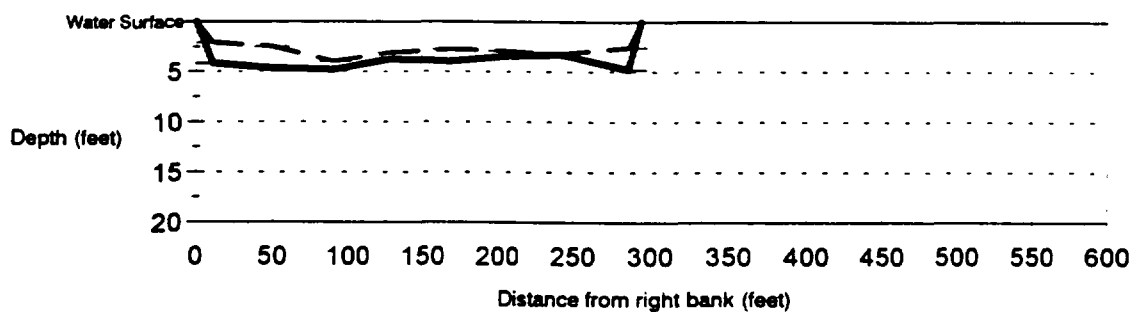
--- Top of Sediment — Bottom of Sediment

Sediment Characterization and Geostatistical Pilot Study
Appendix B - Kalamazoo River Transect Cross-Sections

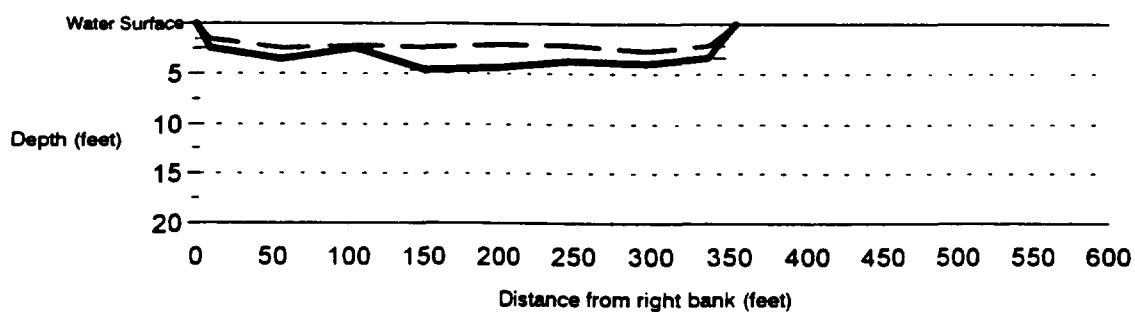
KPT33



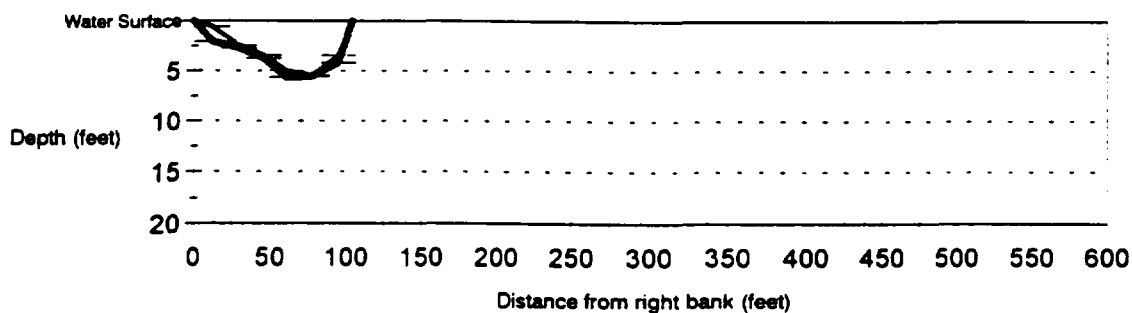
KPT34



KPT35



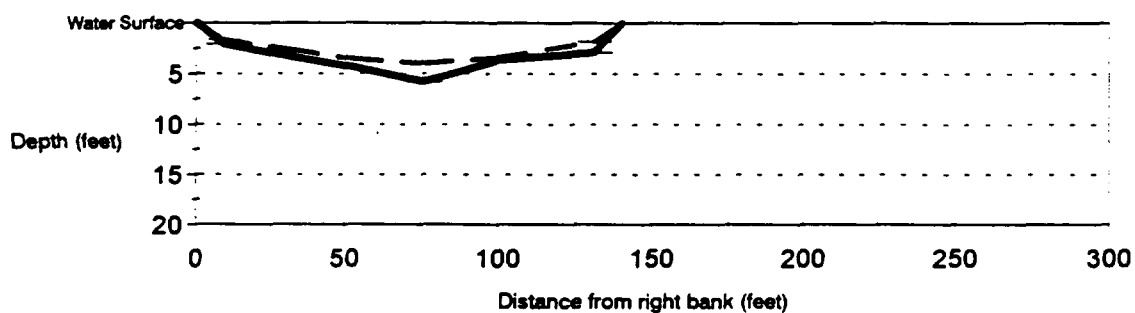
KPT36



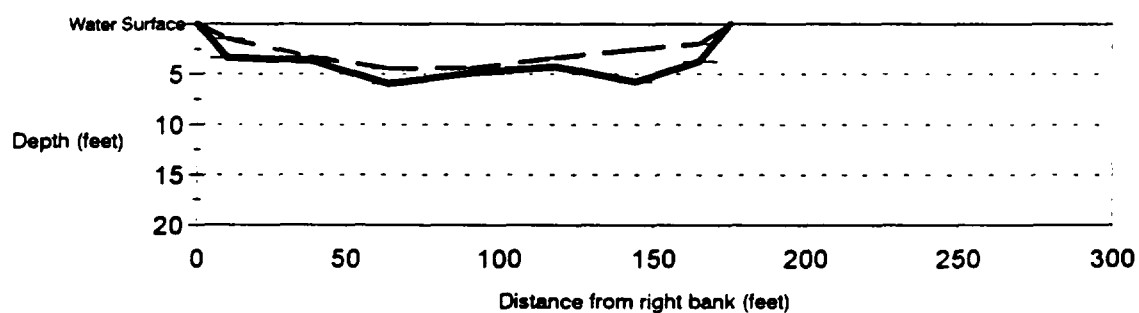
--- Top of Sediment Bottom of Sediment

Sediment Characterization and Geostatistical Pilot Study
Appendix B - Kalamazoo River Transect Cross-Sections

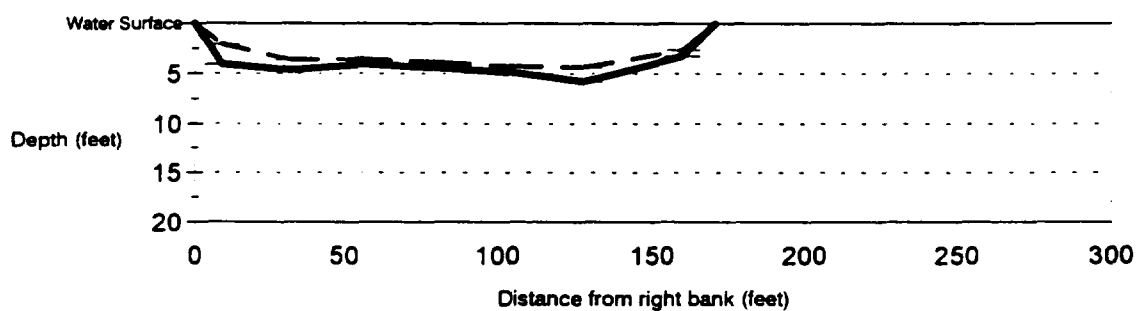
KPT37



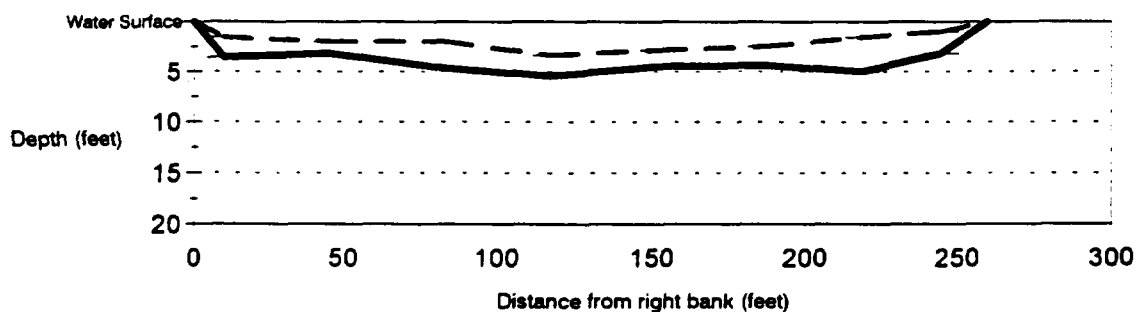
KPT38



KPT39



KPT40



--- Top of Sediment — Bottom of Sediment

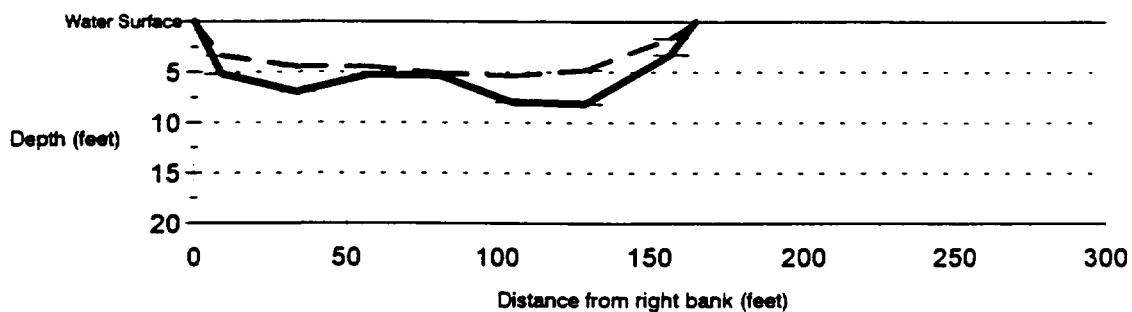
Sediment Characterization and Geostatistical Pilot Study

Appendix B - Kalamazoo River Transect Cross-Sections

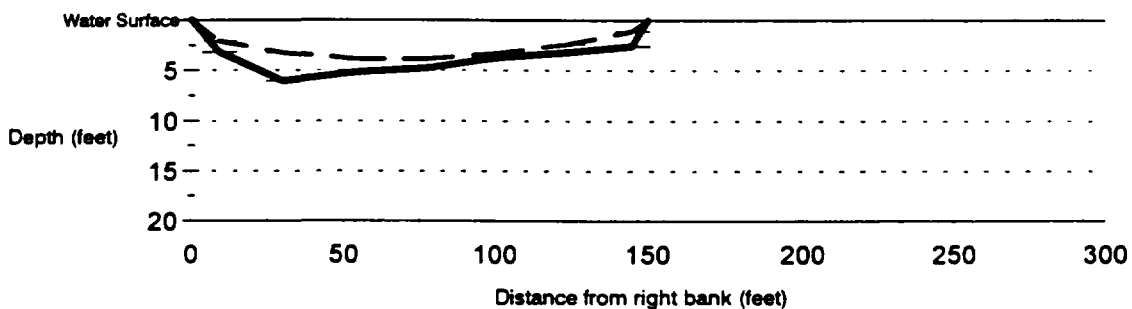


BLASLAND, BOUCK & LEE, INC.
ENGINEERS & SCIENTISTS

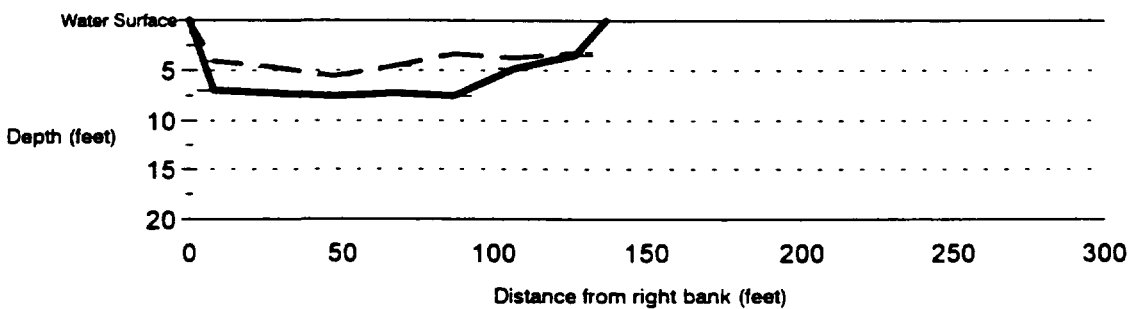
KPT41



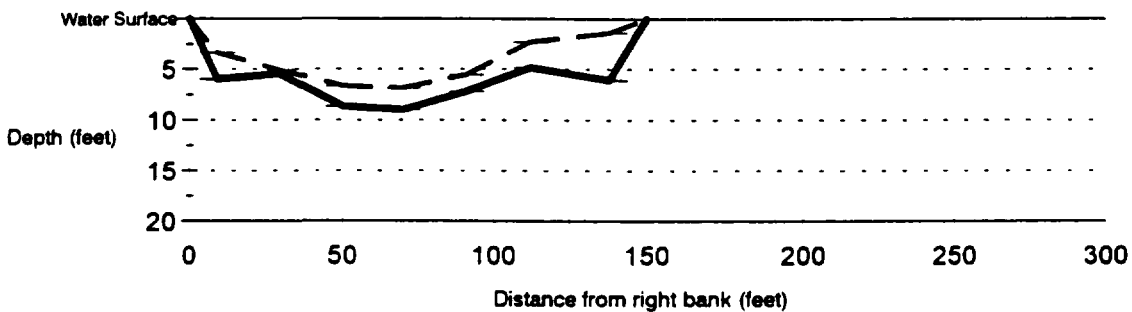
KPT42



KPT43



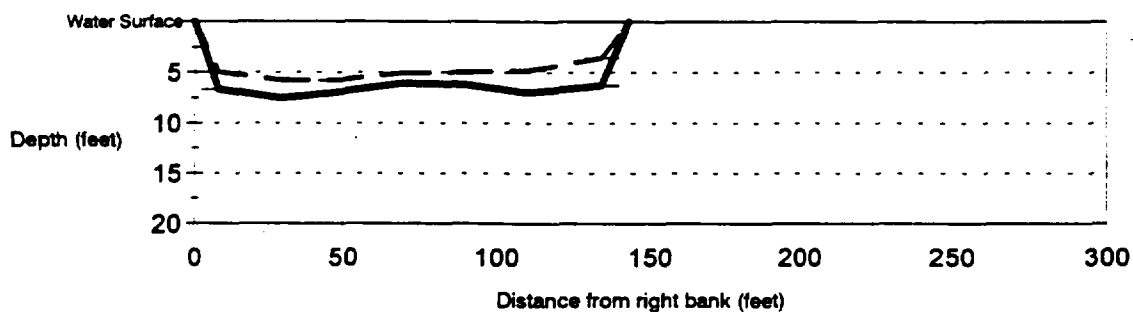
KPT44



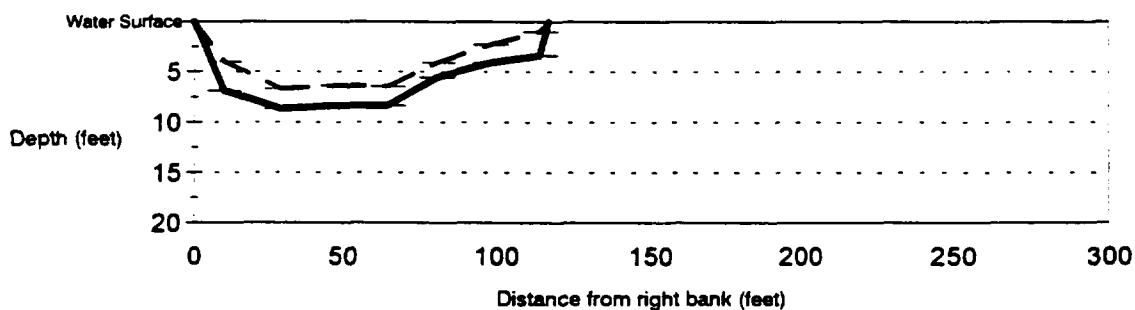
--- Top of Sediment — Bottom of Sediment

Sediment Characterization and Geostatistical Pilot Study
Appendix B - Kalamazoo River Transect Cross-Sections

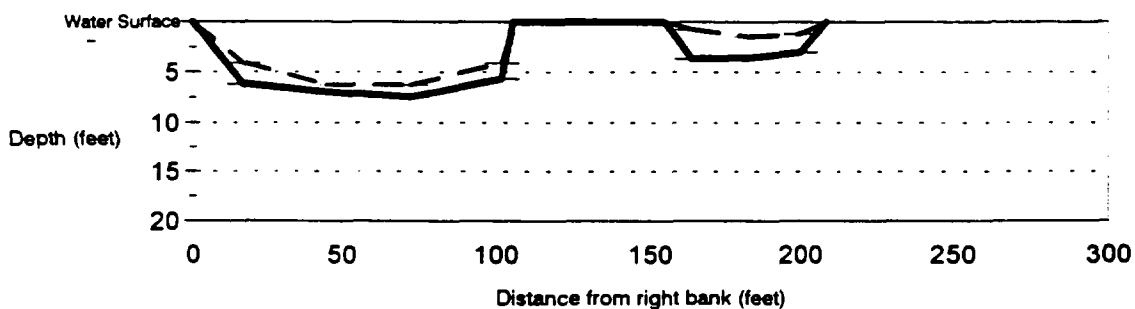
KPT45



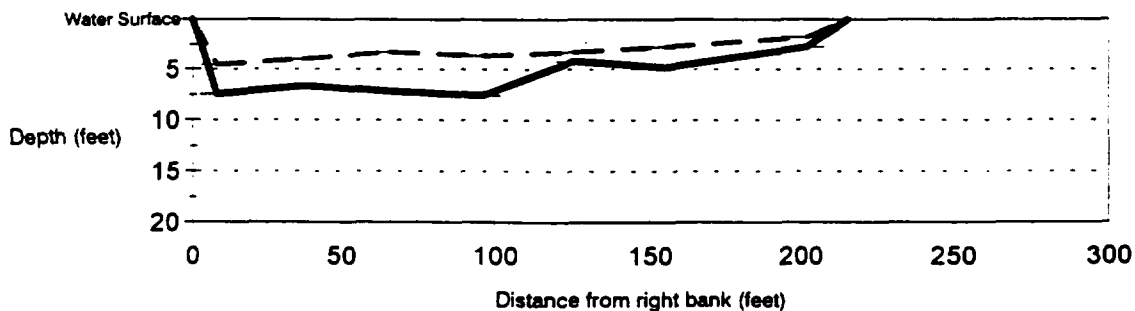
KPT46



KPT47



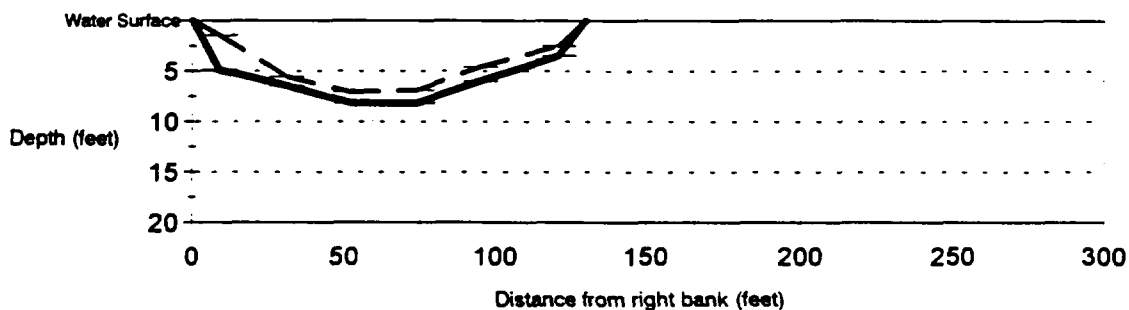
KPT48



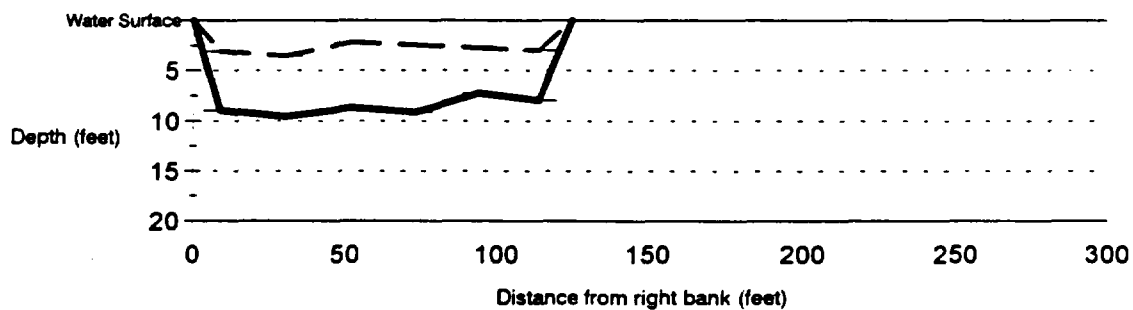
--- Top of Sediment — Bottom of Sediment

Sediment Characterization and Geostatistical Pilot Study
Appendix B - Kalamazoo River Transect Cross-Sections

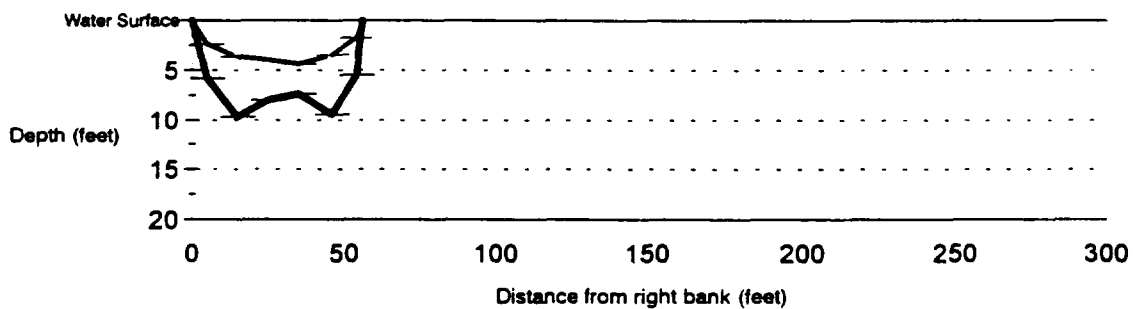
KPT49



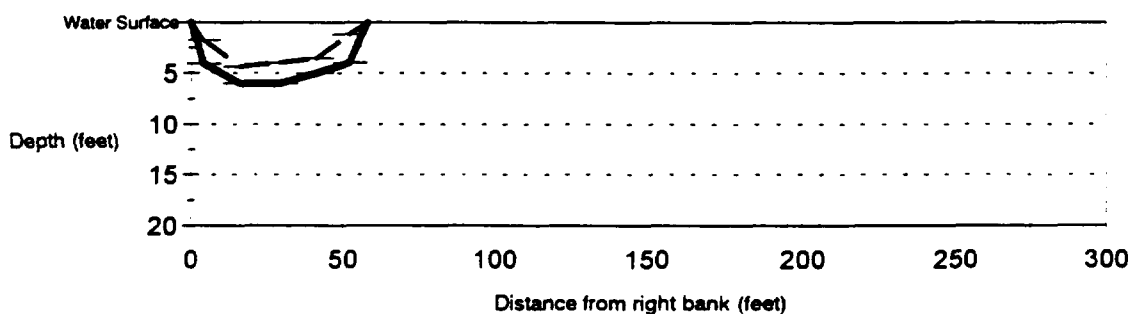
KPT50



KPT51



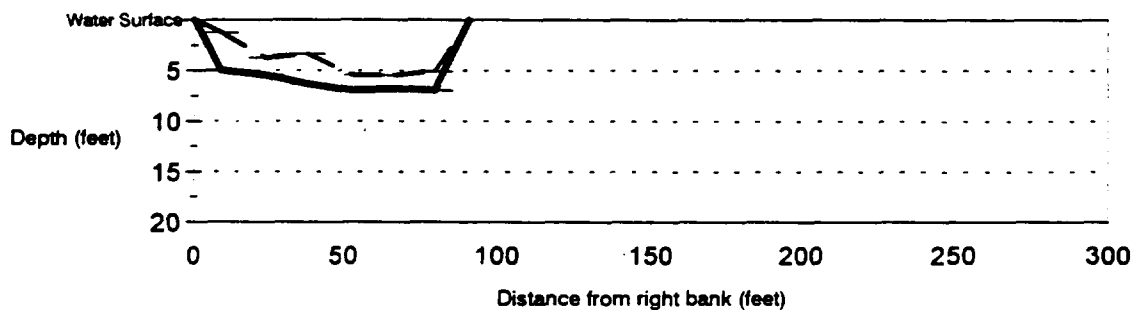
KPT52



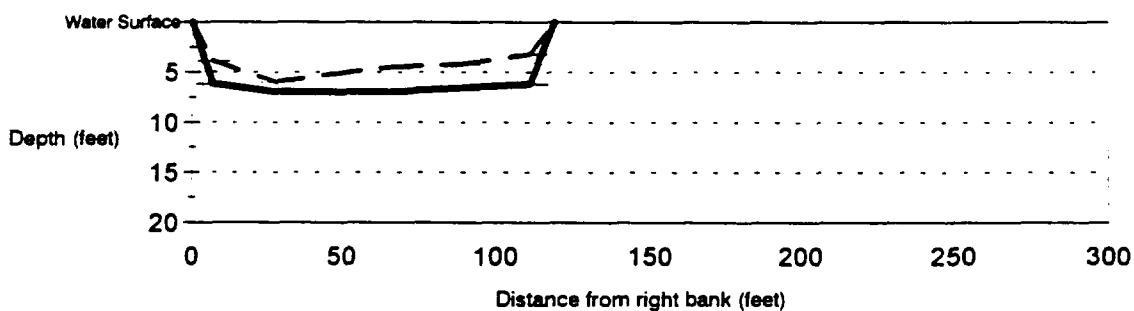
--- Top of Sediment — Bottom of Sediment

Sediment Characterization and Geostatistical Pilot Study
Appendix B - Kalamazoo River Transect Cross-Sections

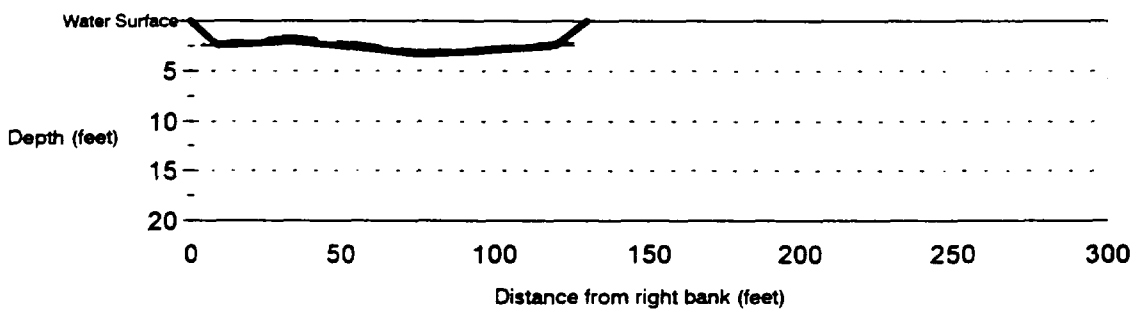
KPT53



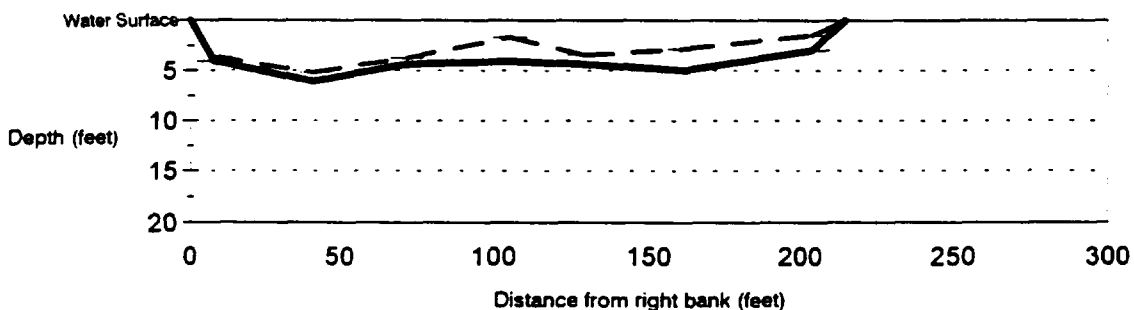
KPT54



KPT55



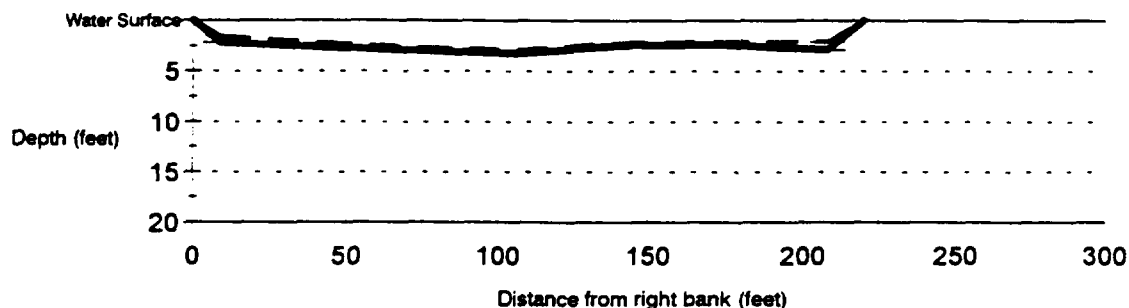
KPT56



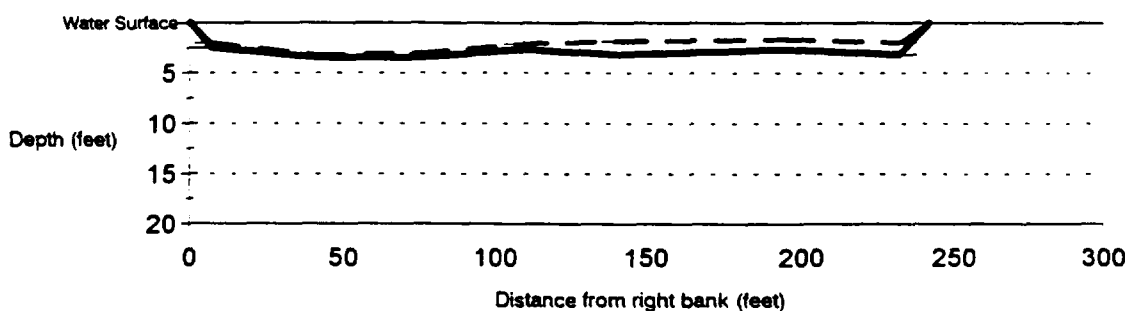
--- Top of Sediment — Bottom of Sediment

Sediment Characterization and Geostatistical Pilot Study
Appendix B - Kalamazoo River Transect Cross-Sections

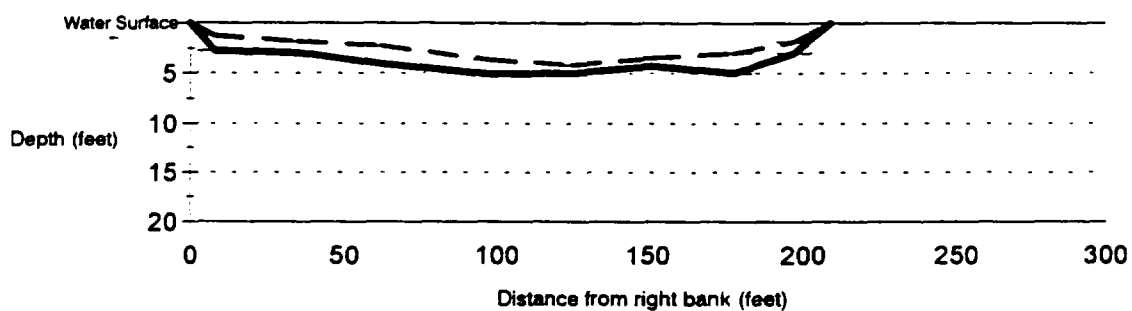
KPT57



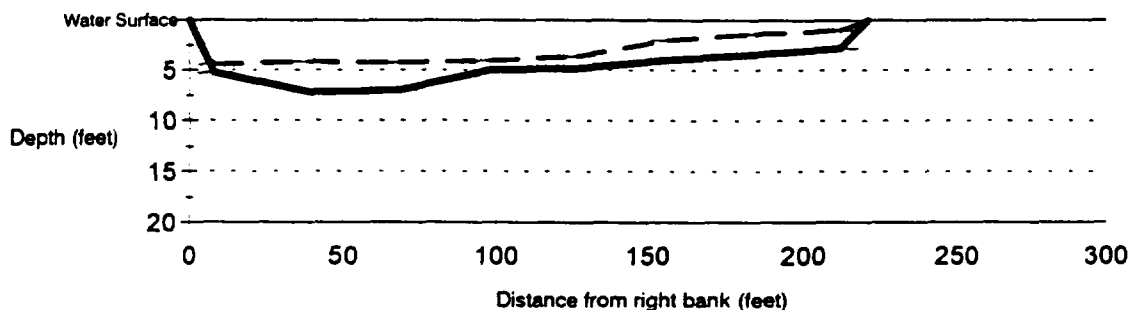
KPT58



KPT59



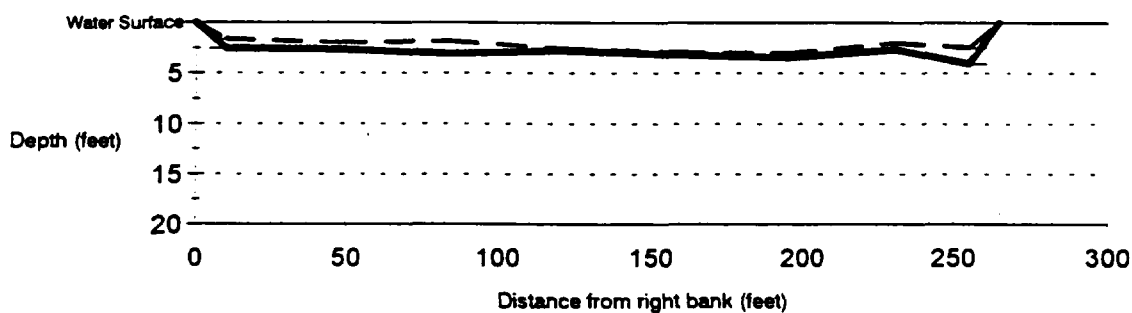
KPT60



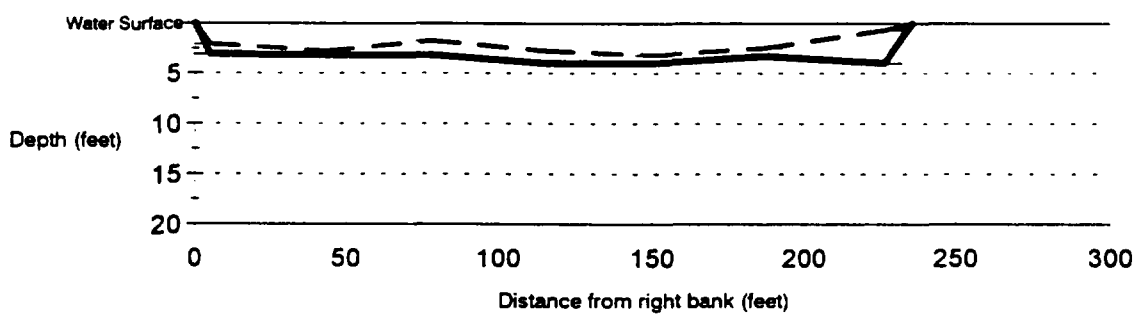
--- Top of Sediment — Bottom of Sediment

Sediment Characterization and Geostatistical Pilot Study
Appendix B - Kalamazoo River Transect Cross-Sections

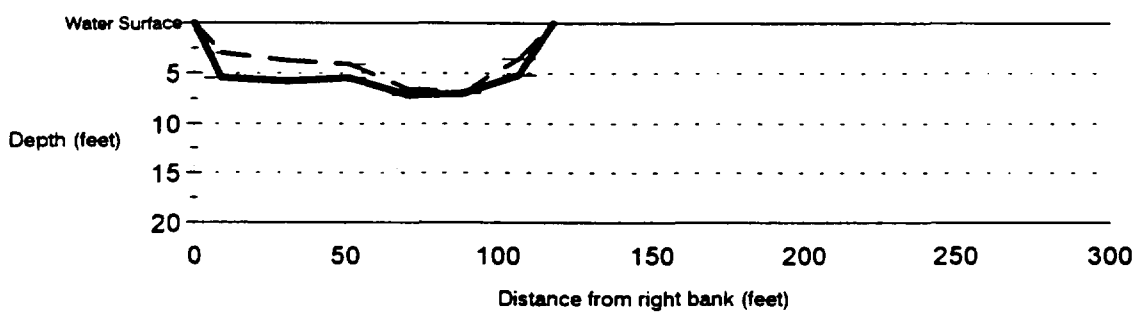
KPT61



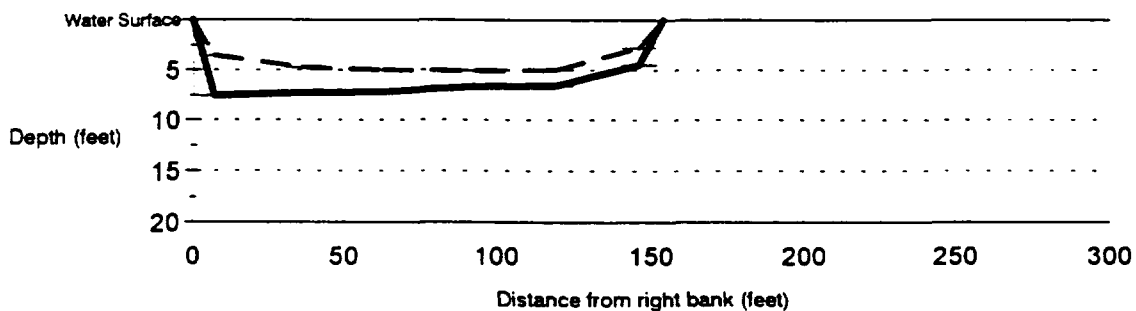
KPT62



KPT63

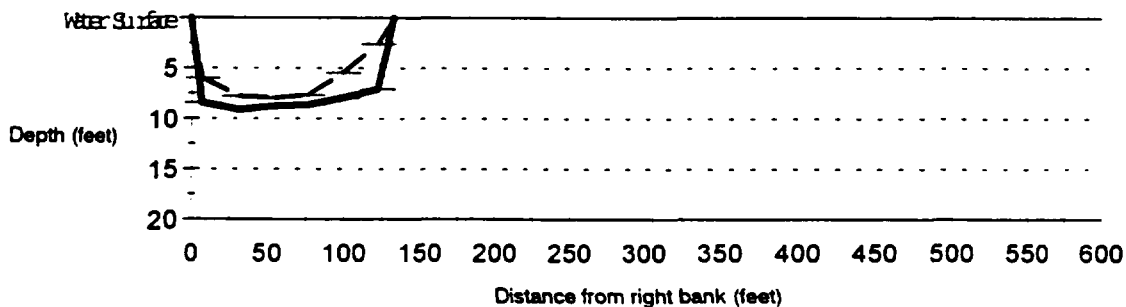


KPT64

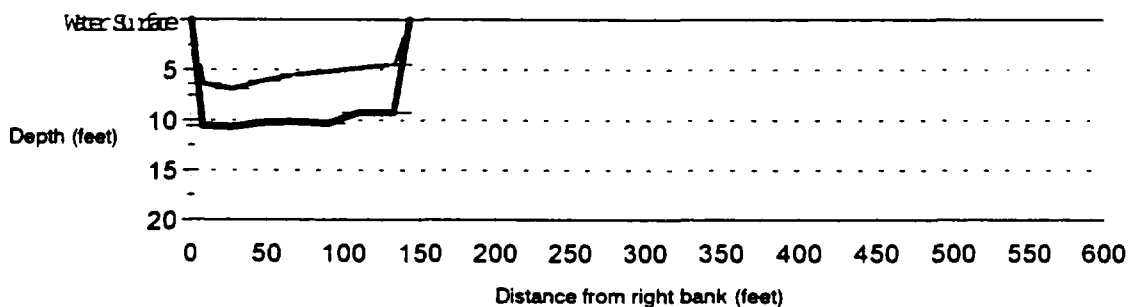


--- Top of Sediment — Bottom of Sediment

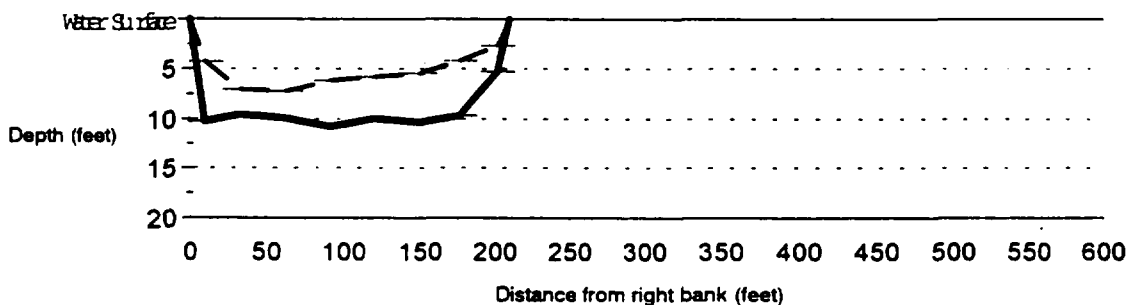
KPT65



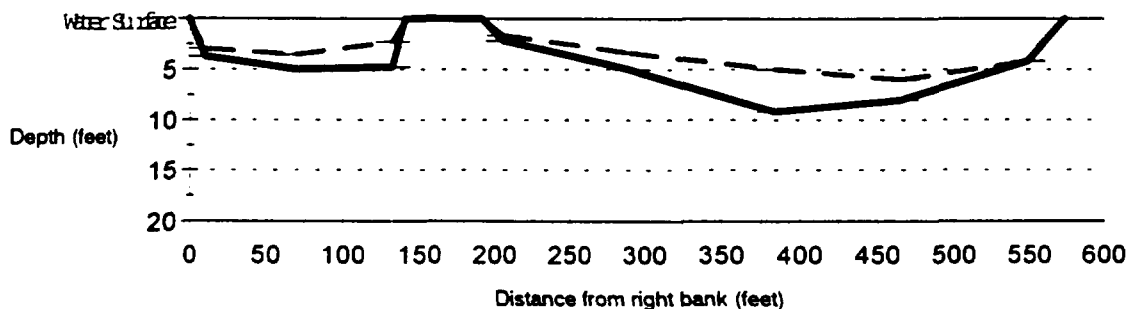
KPT66



KPT67



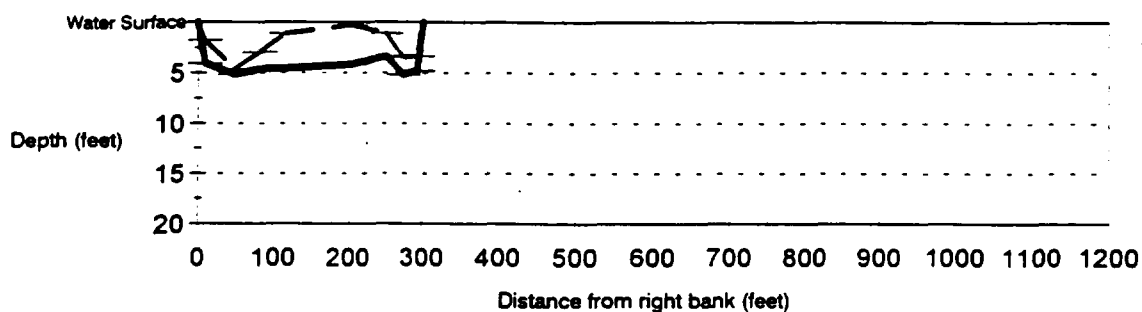
KPT68



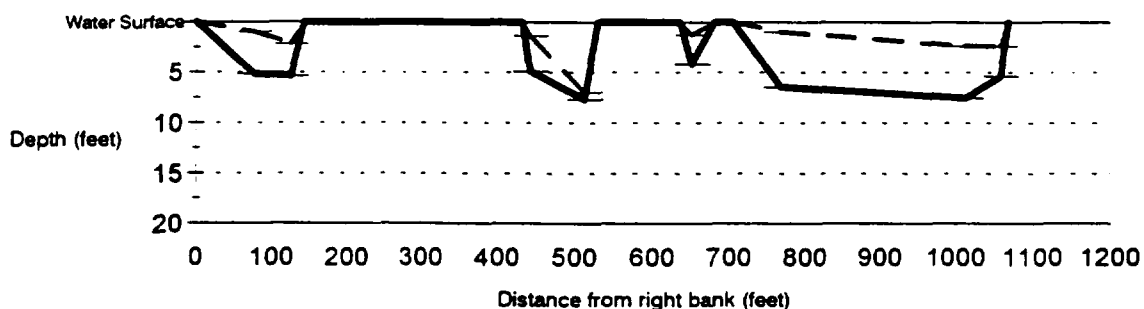
----- Top of Sediment ————— Bottom of Sediment

Sediment Characterization and Geostatistical Pilot Study
Appendix B - Kalamazoo River Transect Cross-Sections

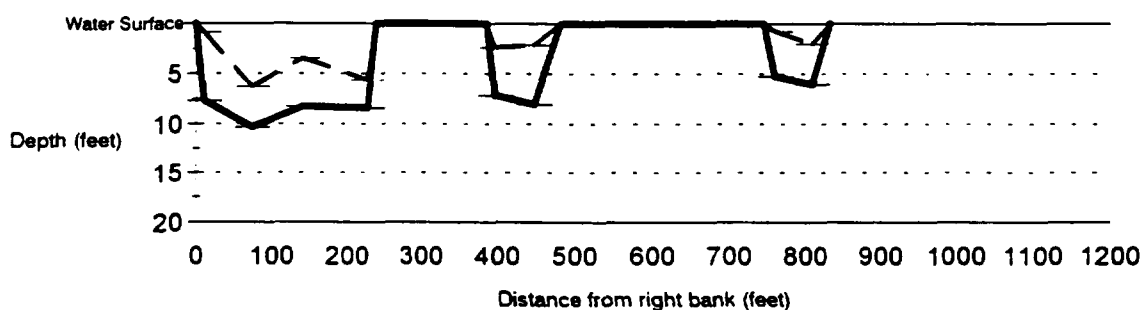
KPT69



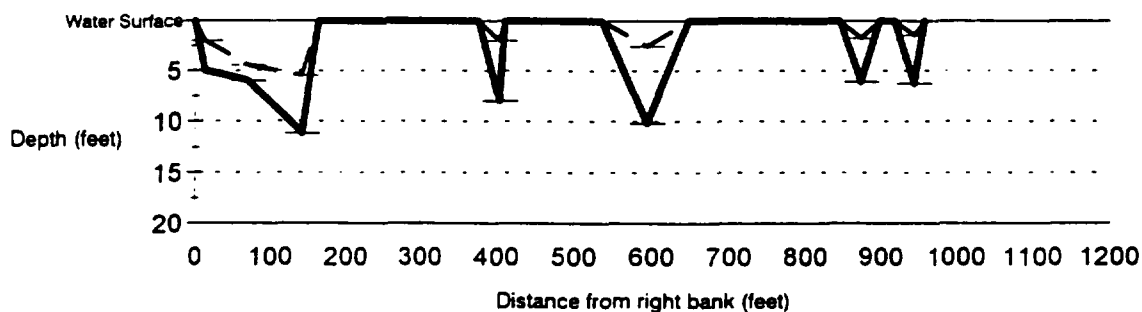
KPT70



KPT71

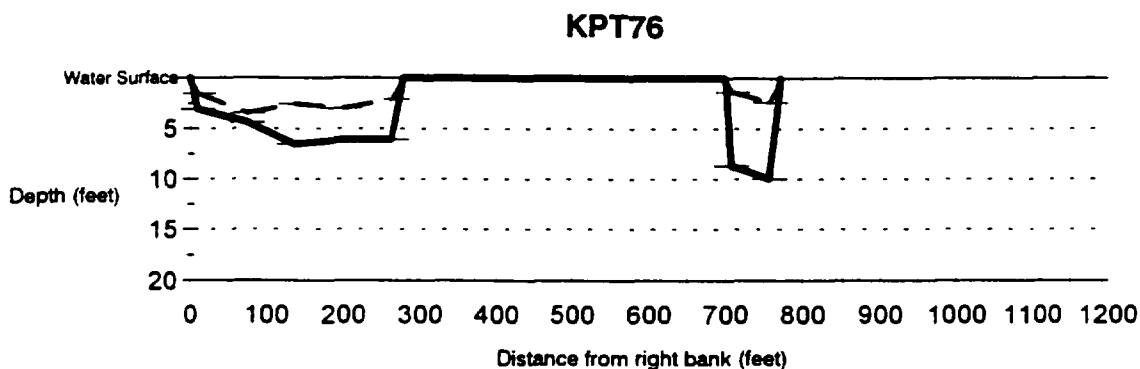
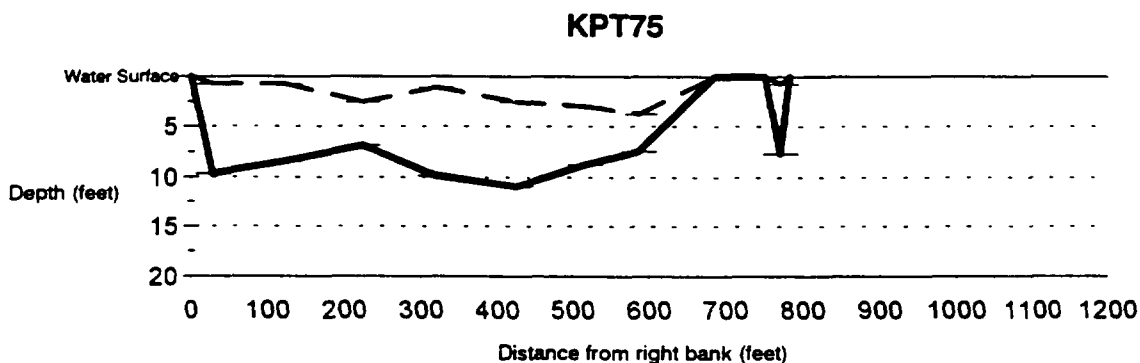
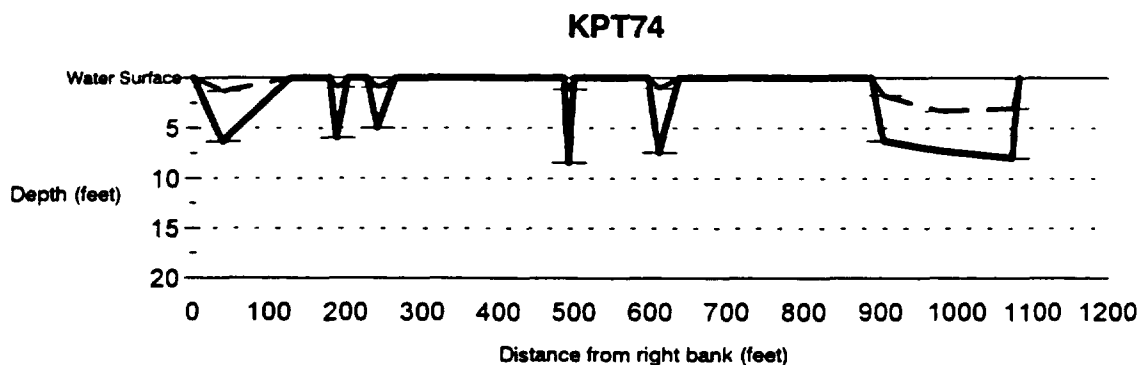
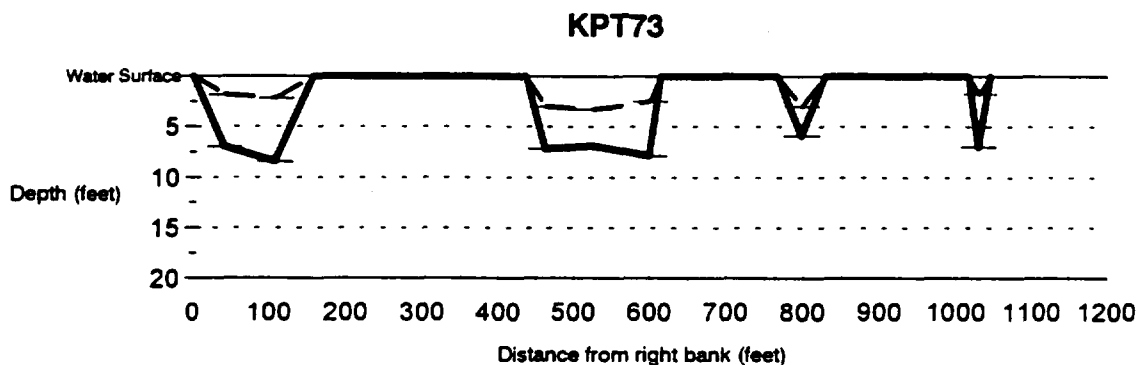


KPT72



--- Top of Sediment — Bottom of Sediment

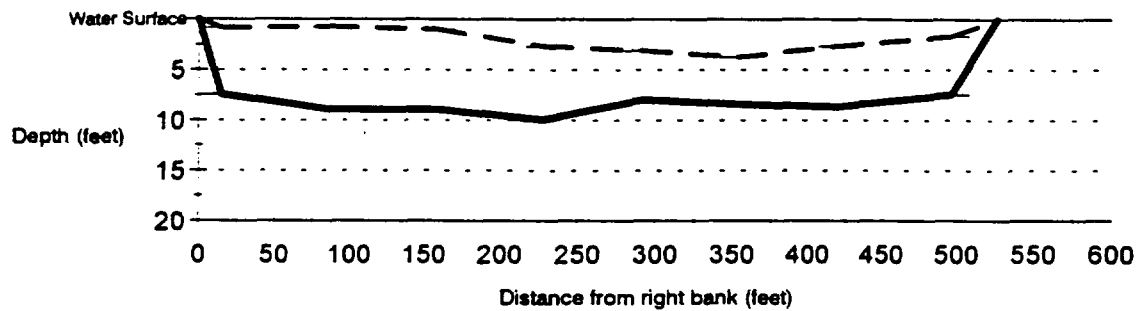
Sediment Characterization and Geostatistical Pilot Study
Appendix B - Kalamazoo River Transect Cross-Sections



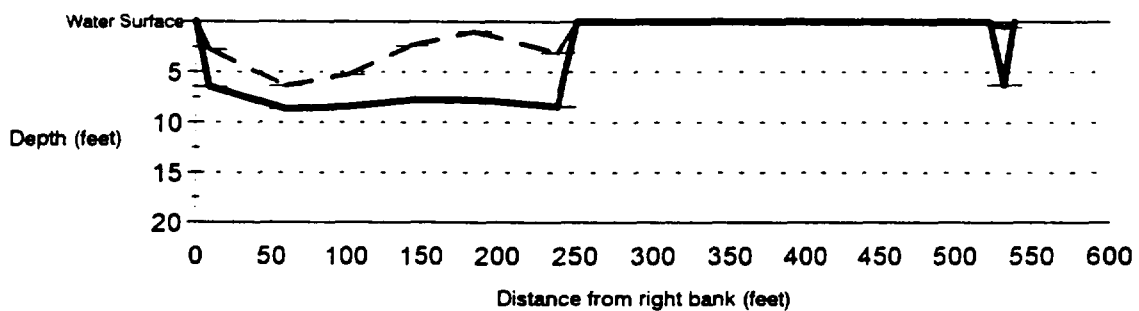
--- Top of Sediment — Bottom of Sediment

Sediment Characterization and Geostatistical Pilot Study
Appendix B - Kalamazoo River Transect Cross-Sections

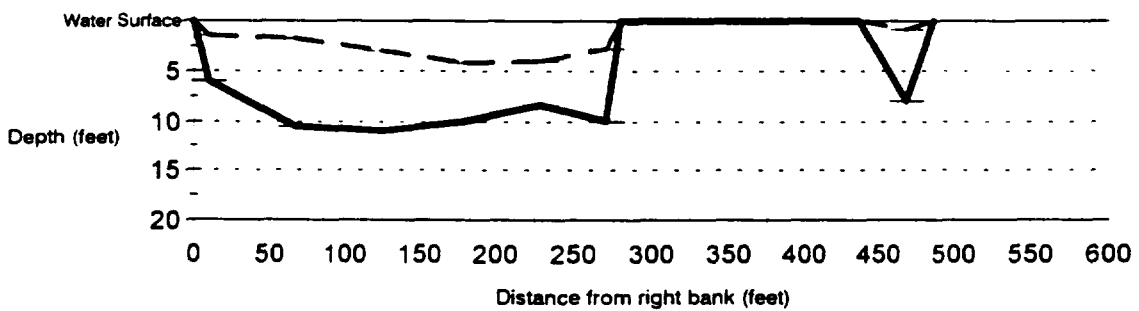
KPT77



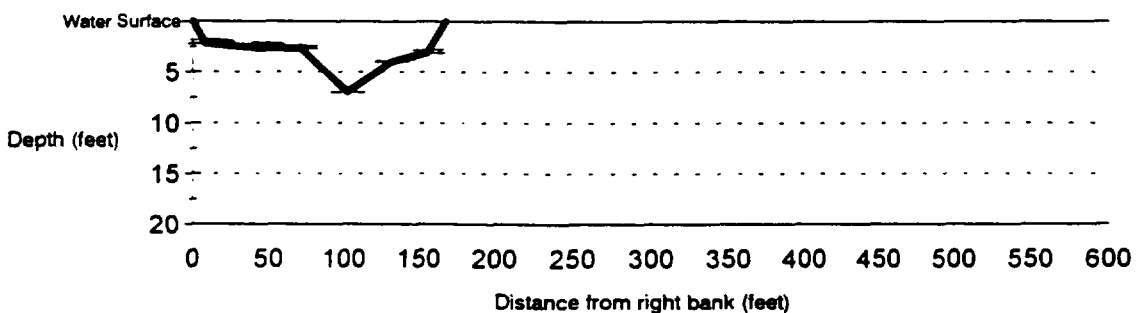
KPT78



KPT79



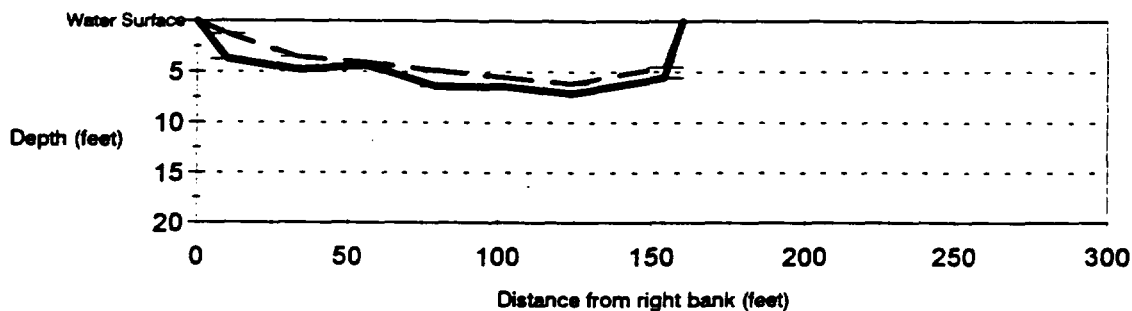
KPT80



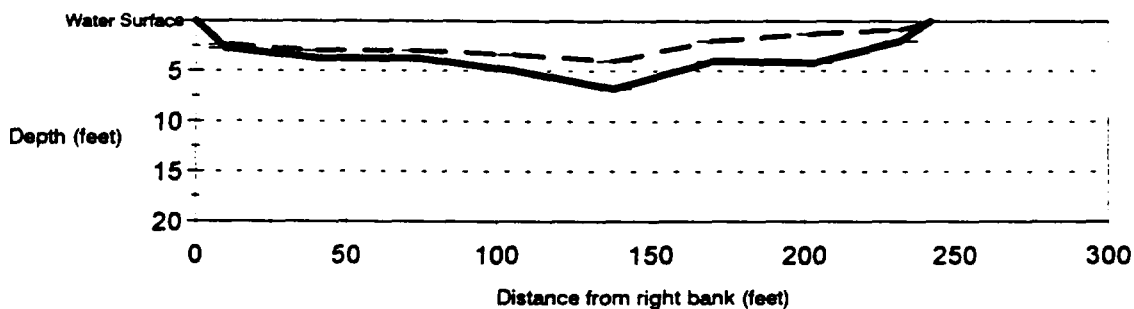
--- Top of Sediment — Bottom of Sediment

Sediment Characterization and Geostatistical Pilot Study
Appendix B - Kalamazoo River Transect Cross-Sections

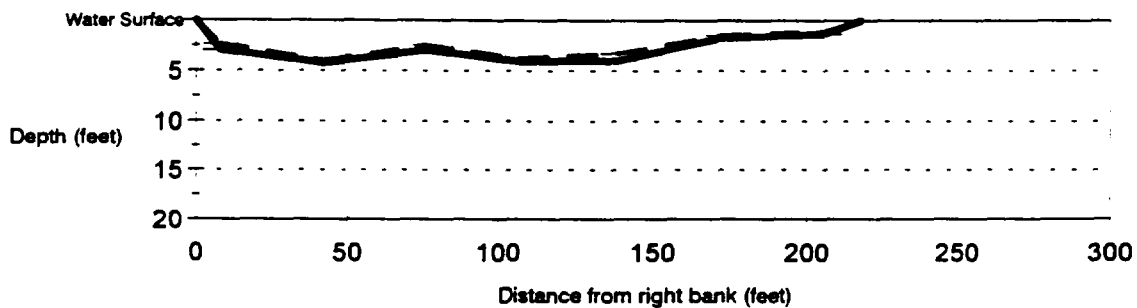
KPT81



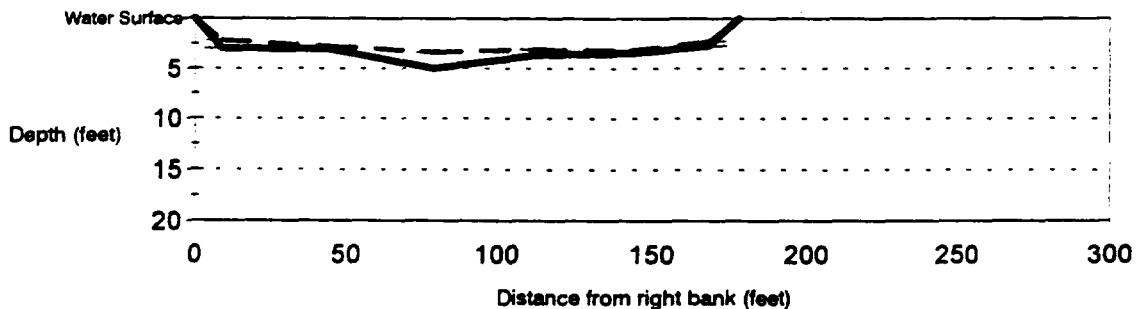
KPT82



KPT83



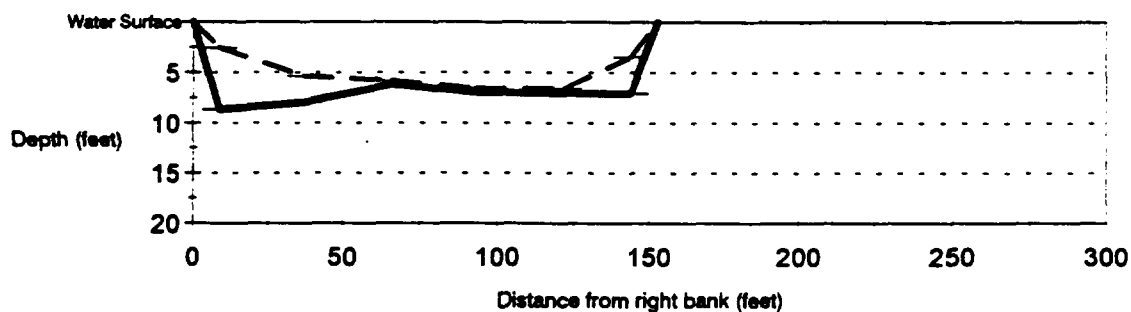
KPT84



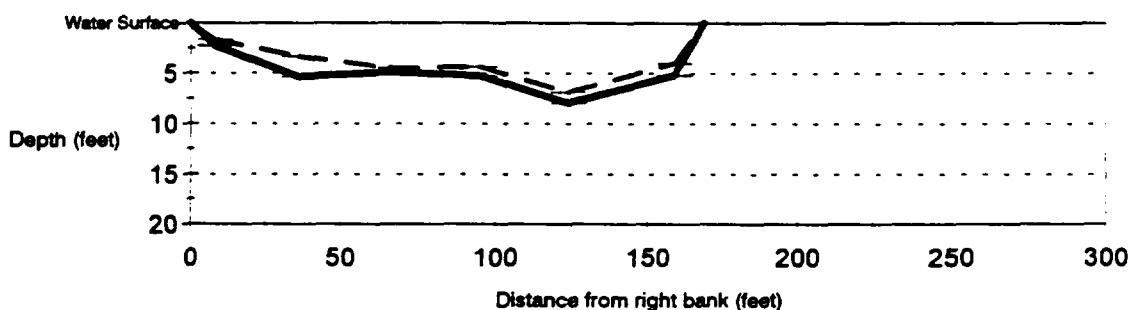
--- Top of Sediment — Bottom of Sediment

Sediment Characterization and Geostatistical Pilot Study
Appendix B - Kalamazoo River Transect Cross-Sections

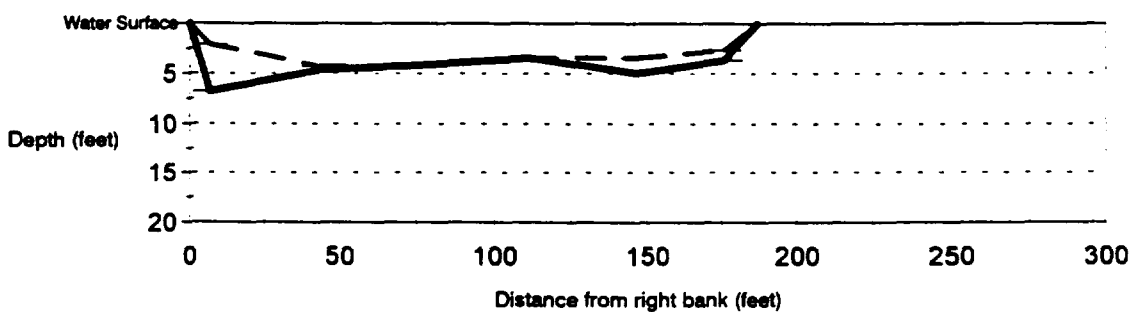
KPT85



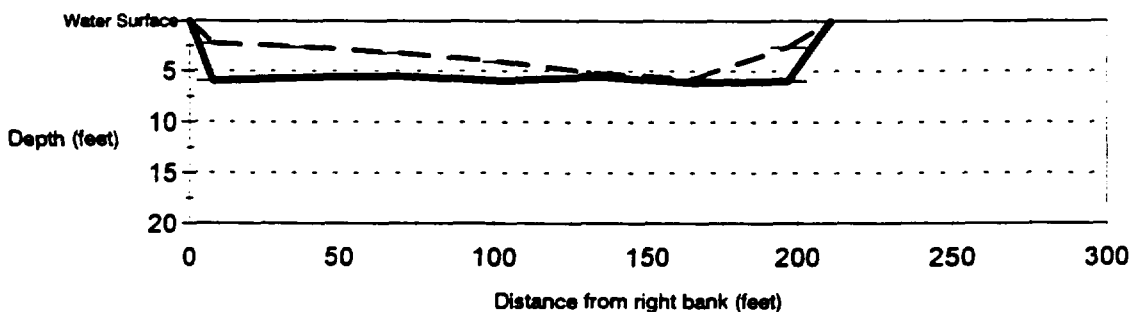
KPT86



KPT87



KPT88

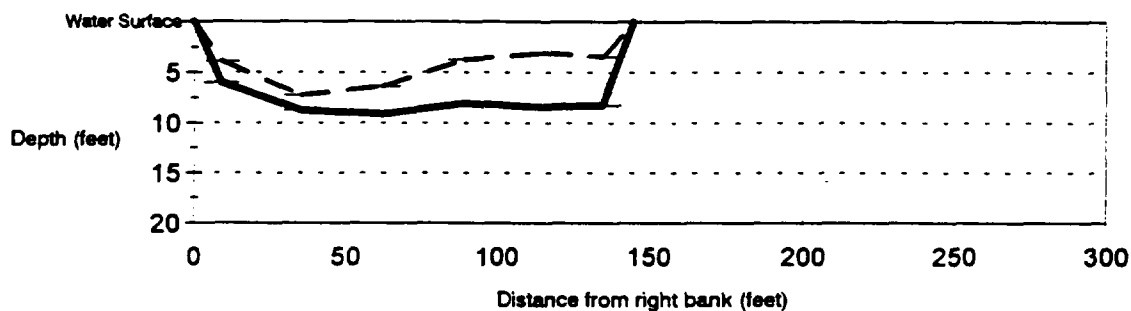


--- Top of Sediment — Bottom of Sediment

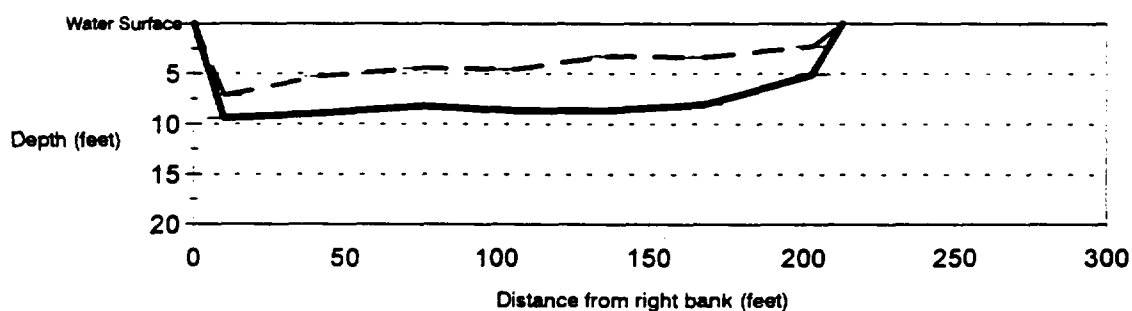
Sediment Characterization and Geostatistical Pilot Study
Appendix B - Kalamazoo River Transect Cross-Sections



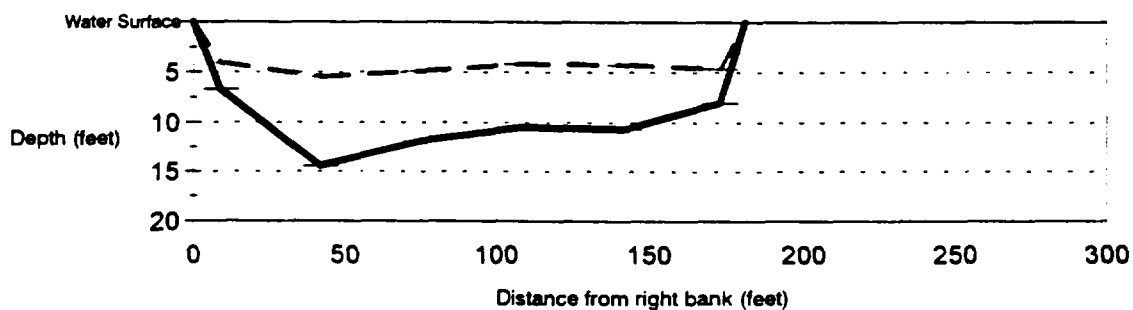
KPT89



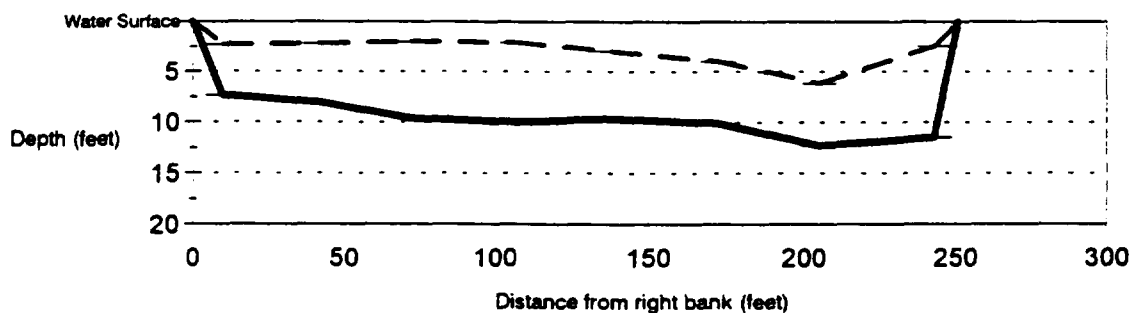
KPT90



KPT91



KPT92

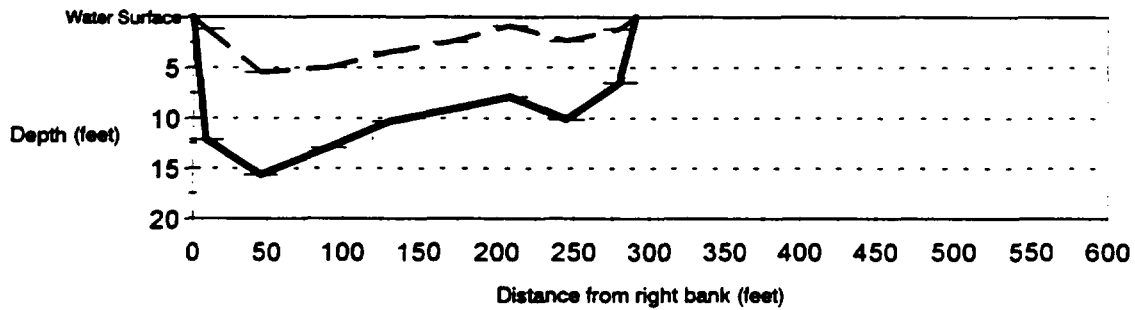


--- Top of Sediment — Bottom of Sediment

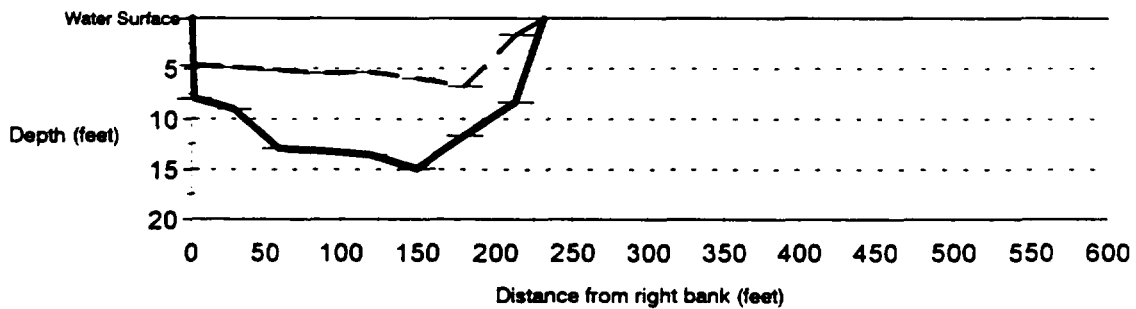
Sediment Characterization and Geostatistical Pilot Study
Appendix B - Kalamazoo River Transect Cross-Sections



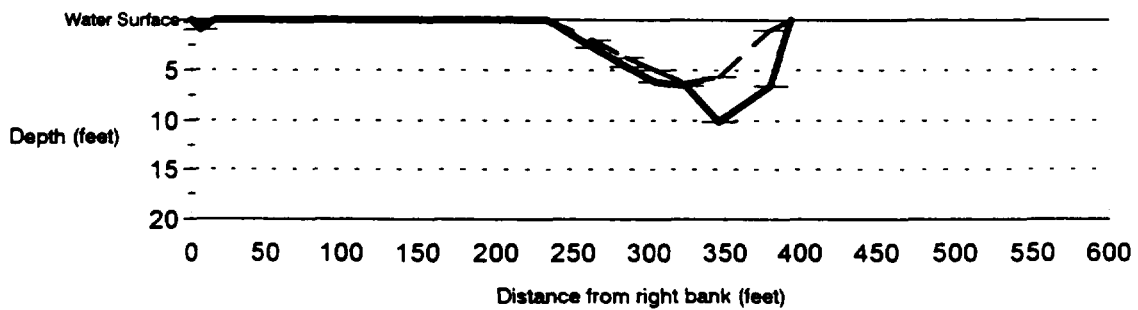
KPT93



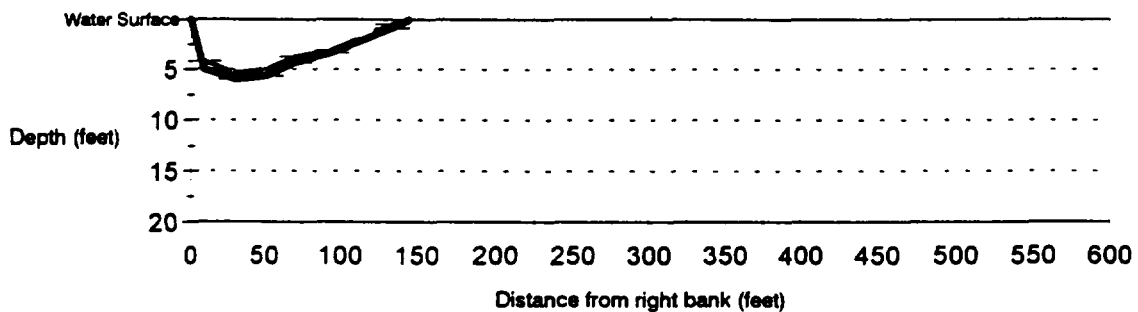
KPT94



KPT95



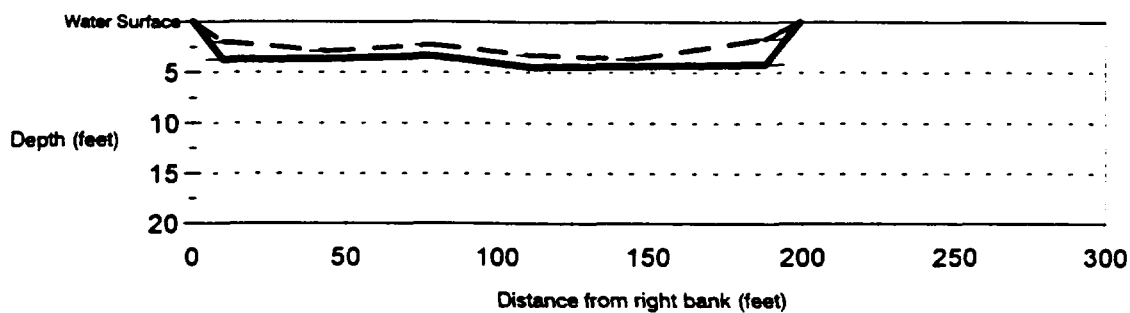
KPT96



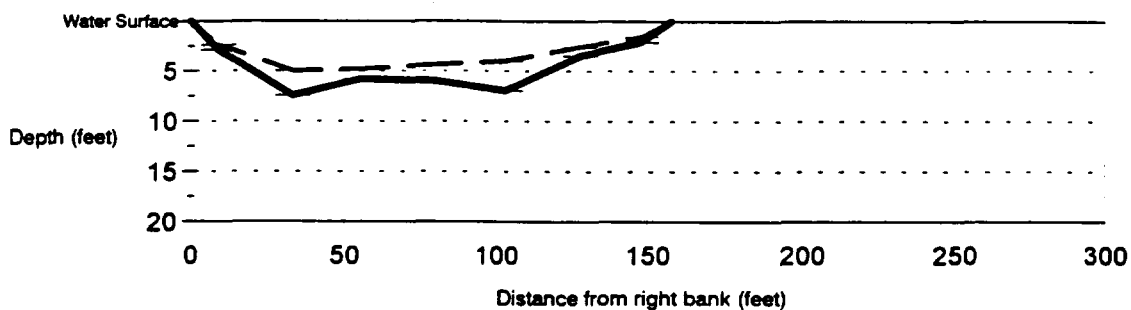
--- Top of Sediment — Bottom of Sediment

Sediment Characterization and Geostatistical Pilot Study
Appendix B - Kalamazoo River Transect Cross-Sections

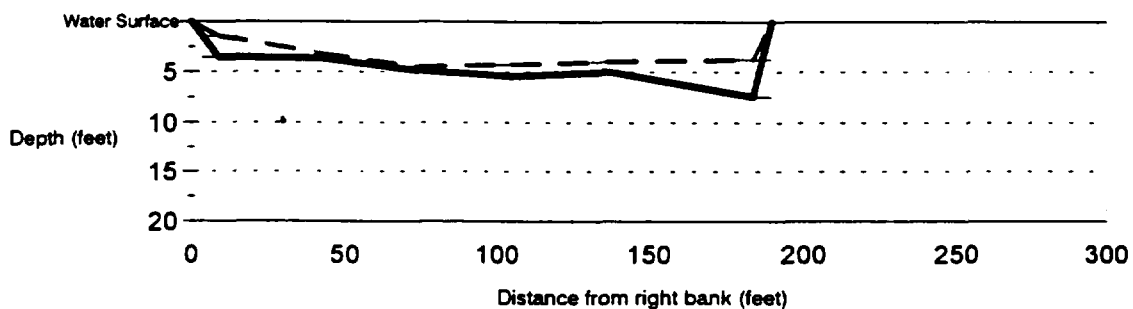
KPT97



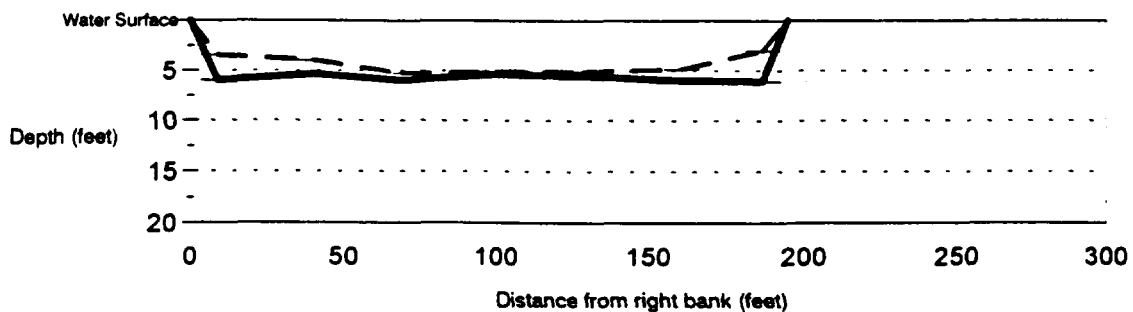
KPT98



KPT99



KPT100

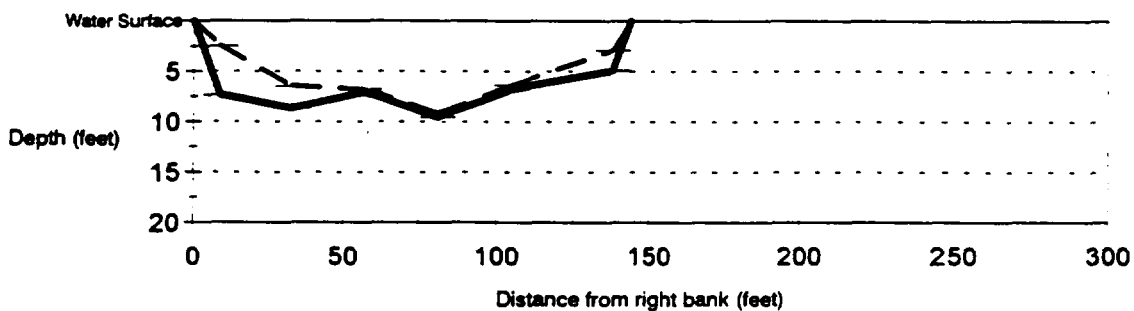


--- Top of Sediment — Bottom of Sediment

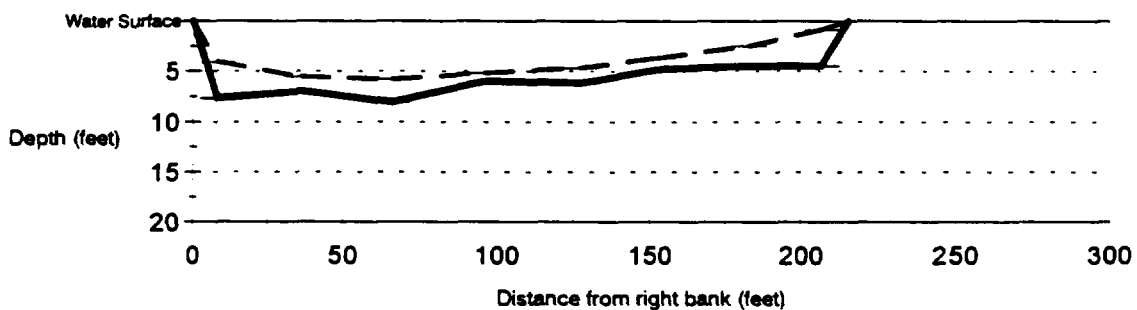
Sediment Characterization and Geostatistical Pilot Study
Appendix B - Kalamazoo River Transect Cross-Sections



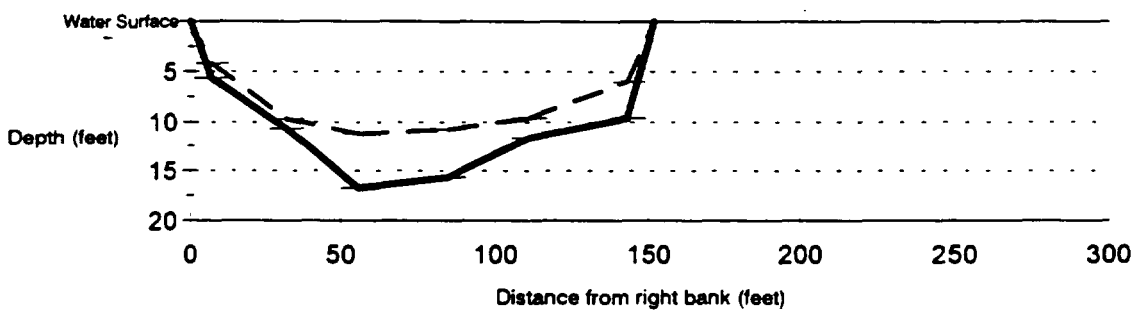
KPT101



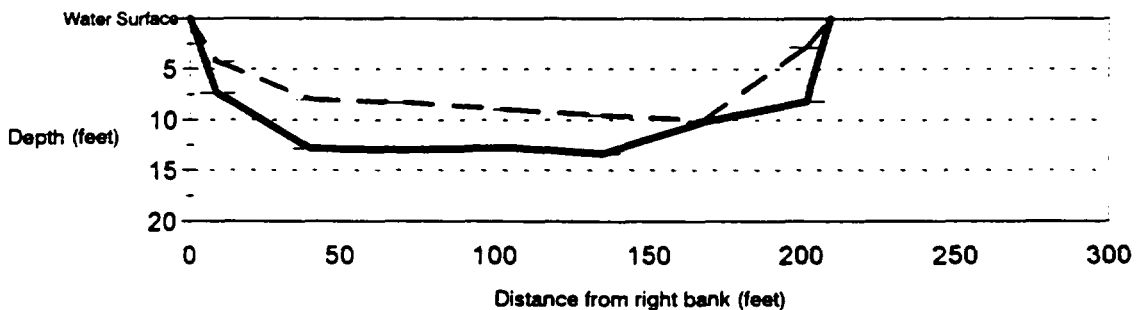
KPT102



KPT103



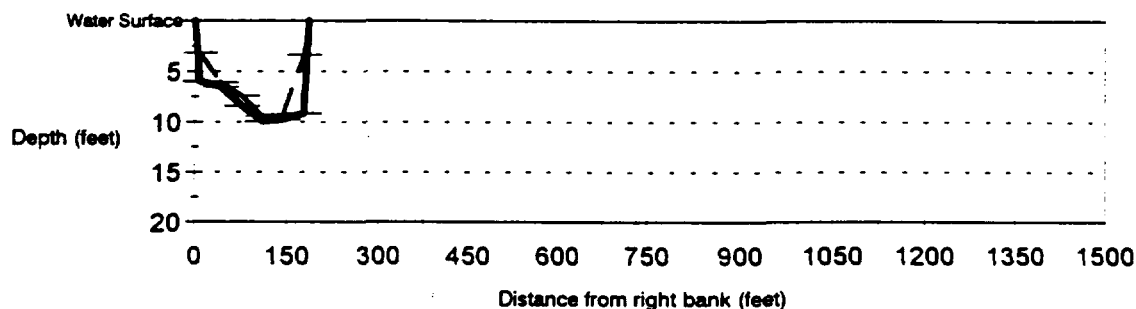
KPT104



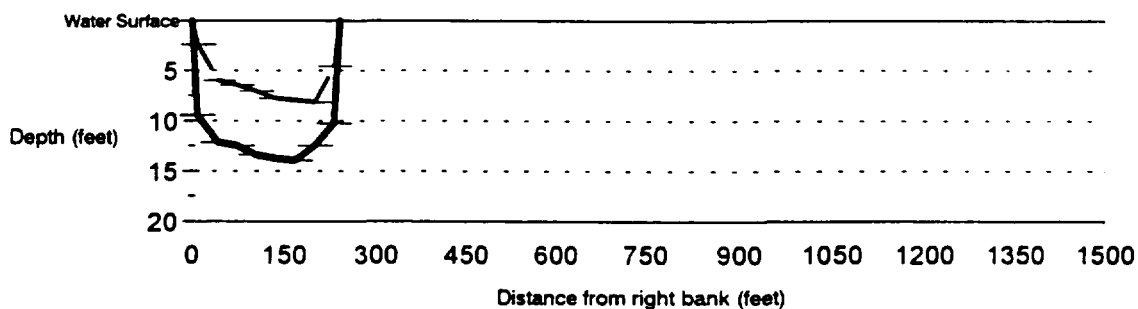
--- Top of Sediment — Bottom of Sediment

Sediment Characterization and Geostatistical Pilot Study
Appendix B - Kalamazoo River Transect Cross-Sections

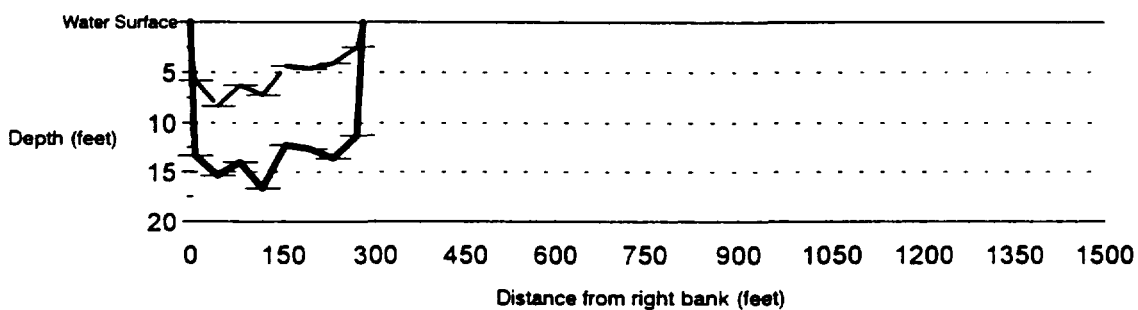
KPT105



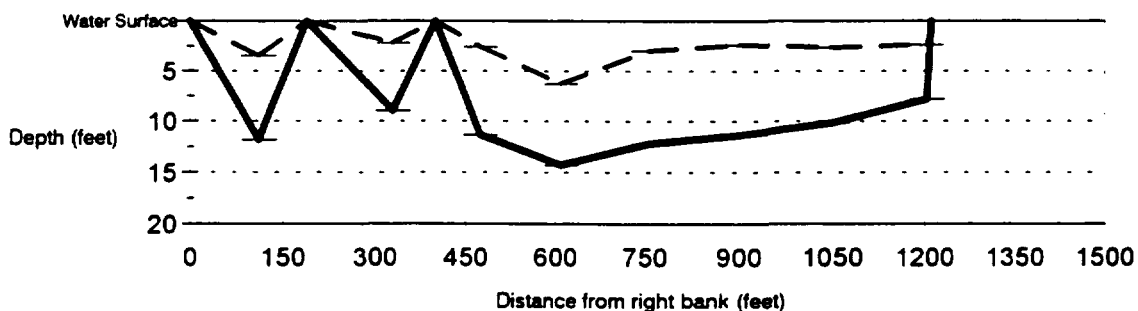
KPT106



KPT107



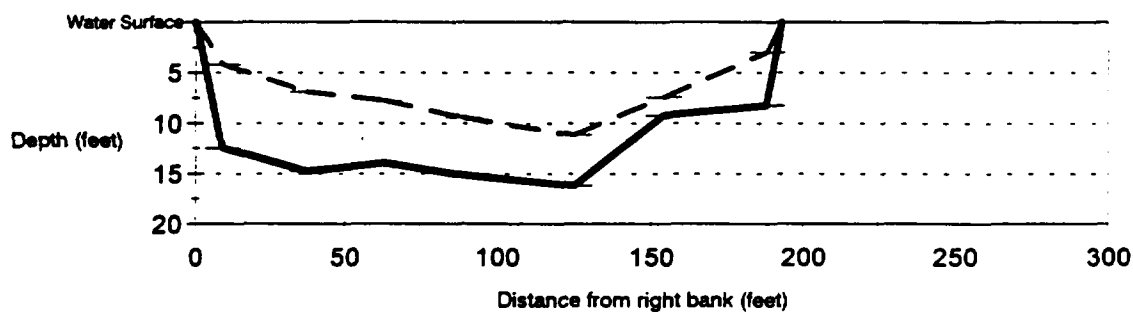
KPT108



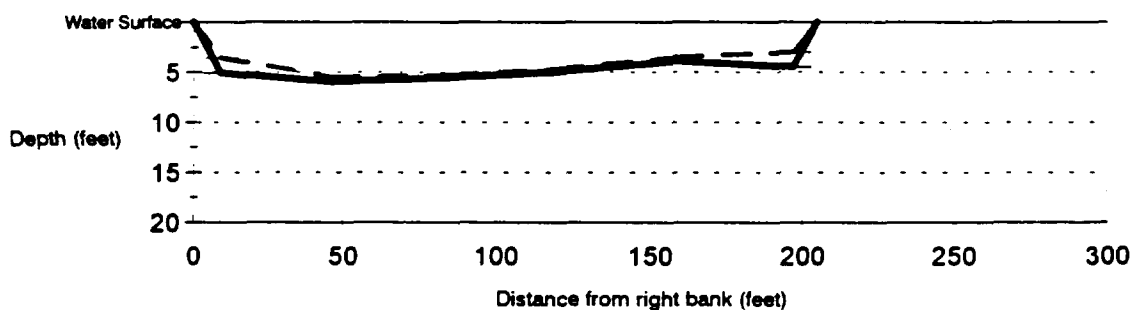
--- Top of Sediment — Bottom of Sediment

Sediment Characterization and Geostatistical Pilot Study
Appendix B - Kalamazoo River Transect Cross-Sections

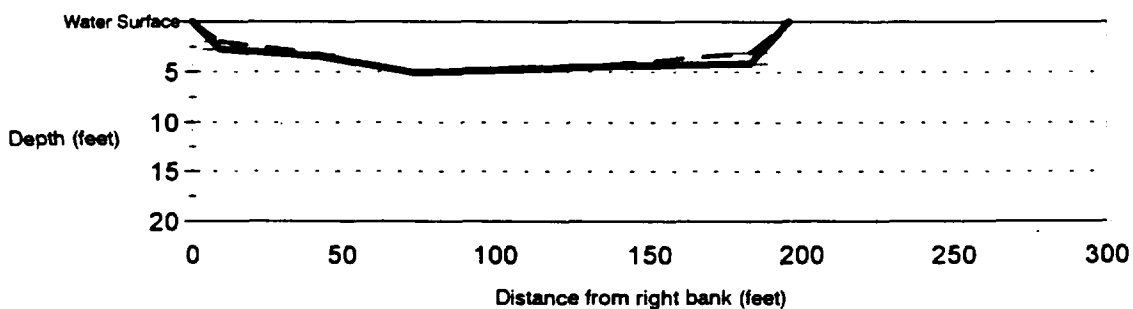
KPT109



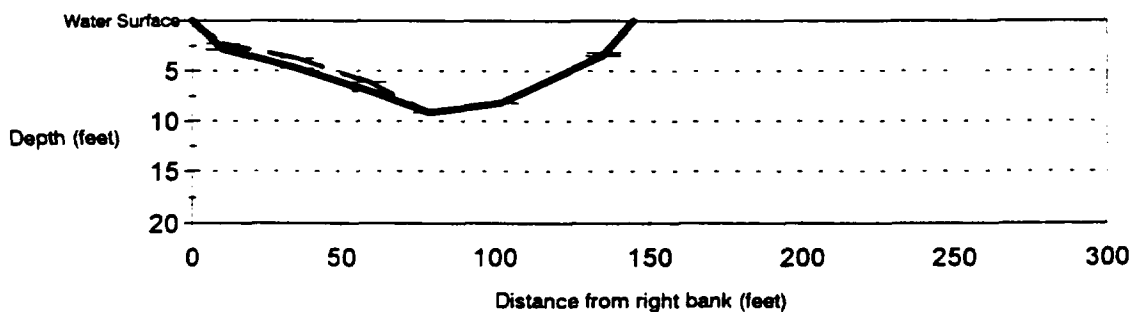
KPT110



KPT111



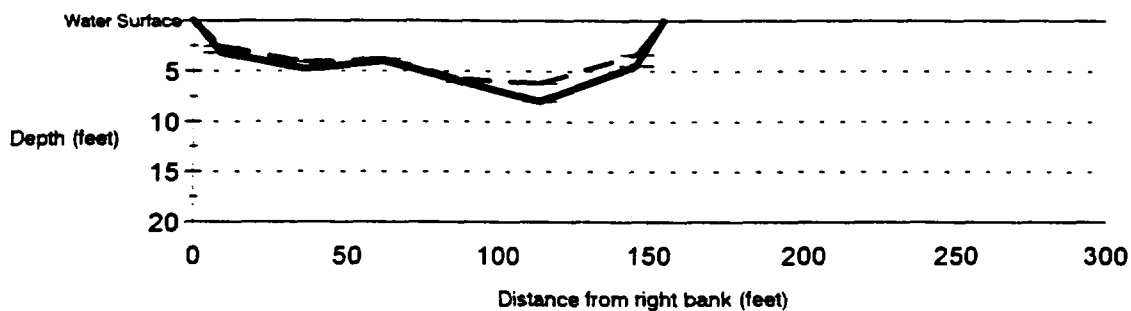
KPT112



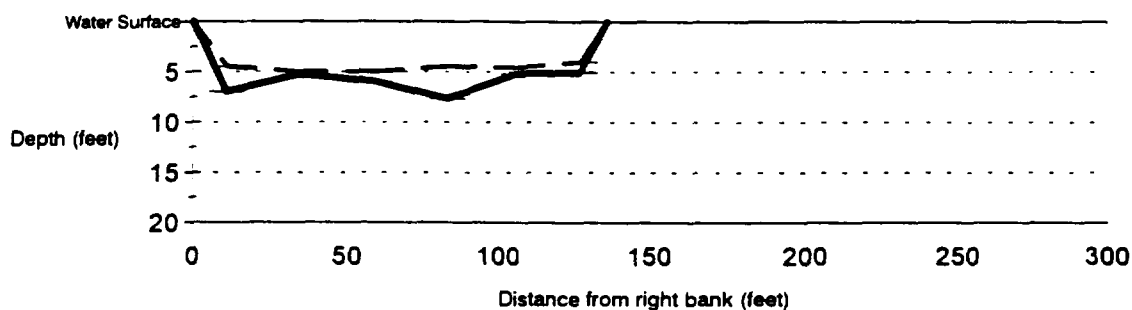
--- Top of Sediment — Bottom of Sediment

Sediment Characterization and Geostatistical Pilot Study
Appendix B - Kalamazoo River Transect Cross-Sections

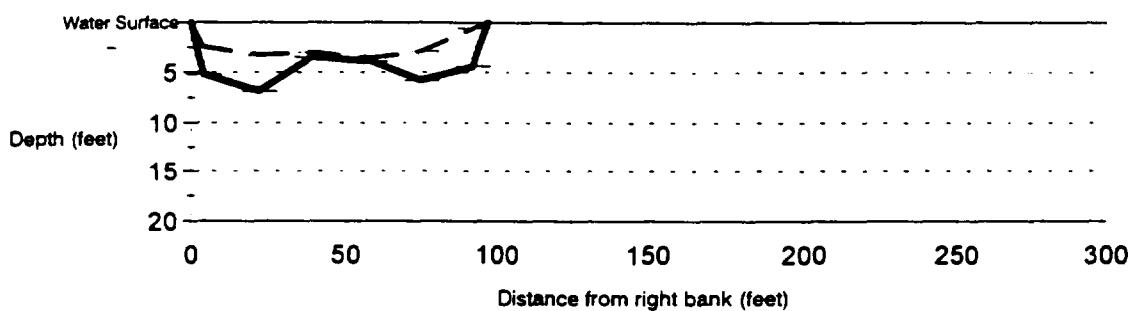
KPT113



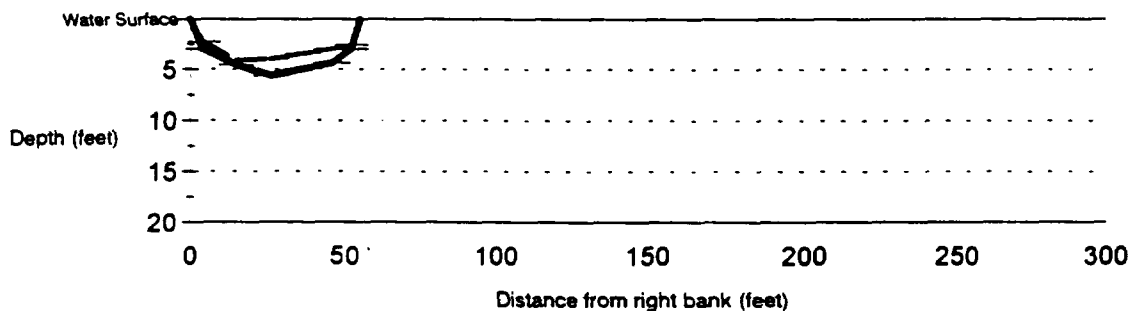
KPT114



KPT115



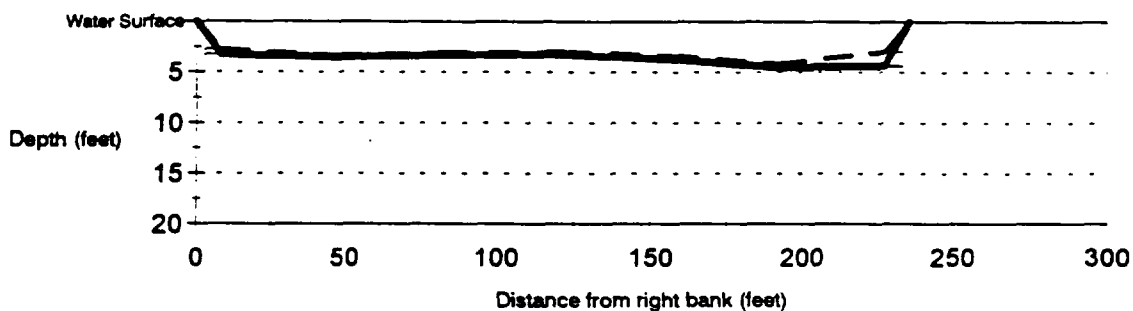
KPT116



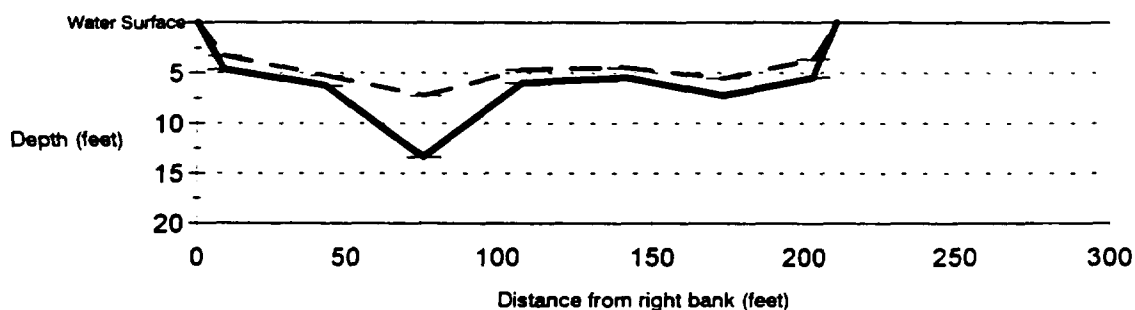
--- Top of Sediment — Bottom of Sediment

Sediment Characterization and Geostatistical Pilot Study
Appendix B - Kalamazoo River Transect Cross-Sections

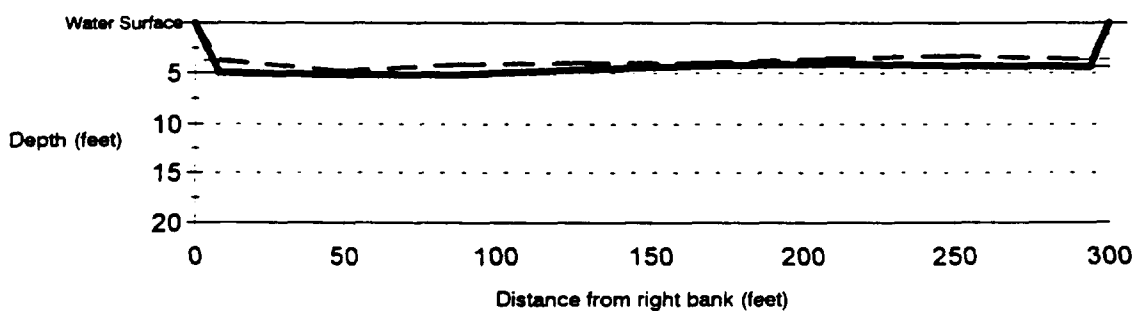
KPT116



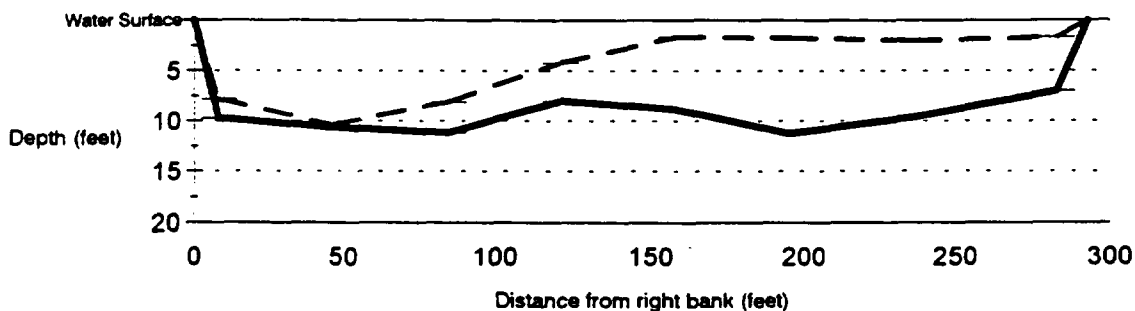
KPT117



KPT118



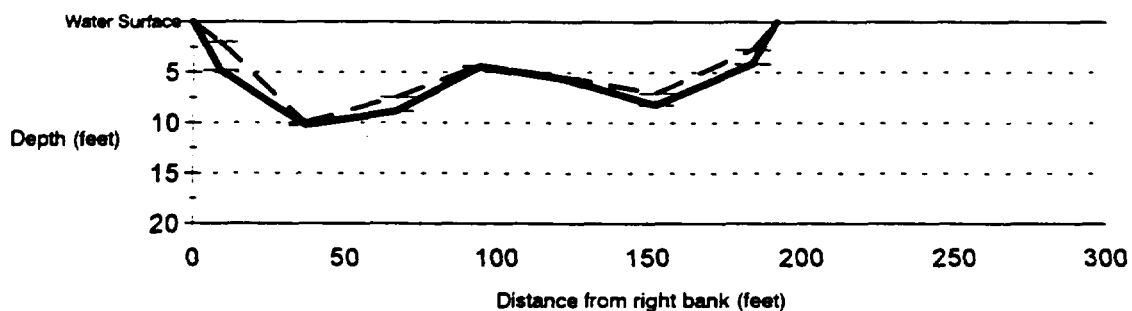
KPT119



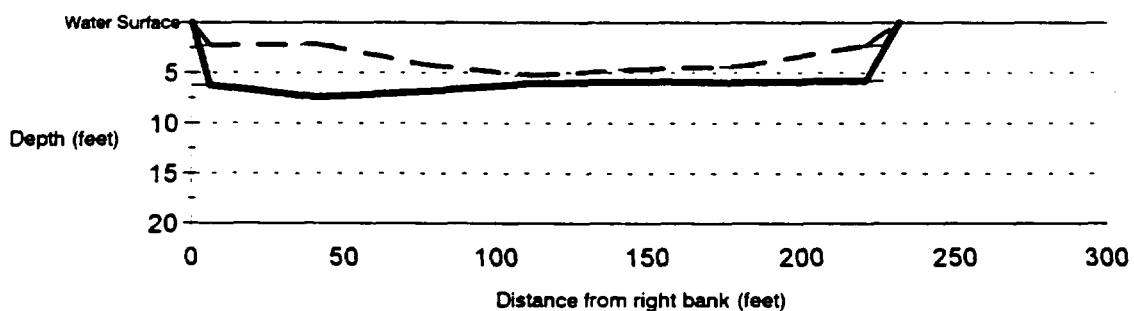
--- Top of Sediment — Bottom of Sediment

Sediment Characterization and Geostatistical Pilot Study
Appendix B - Kalamazoo River Transect Cross-Sections

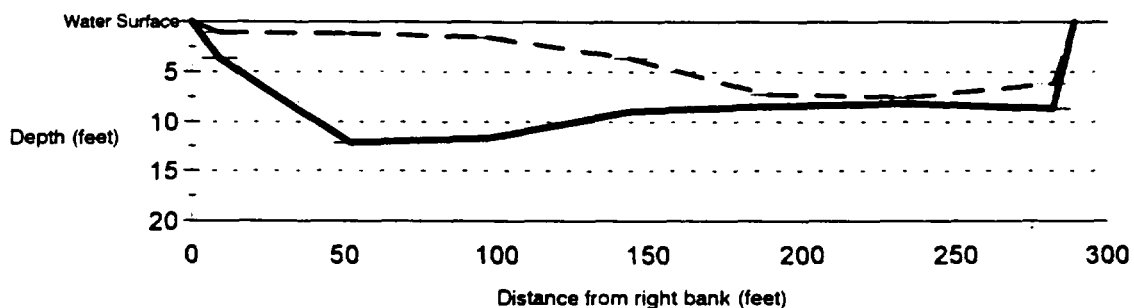
KPT120



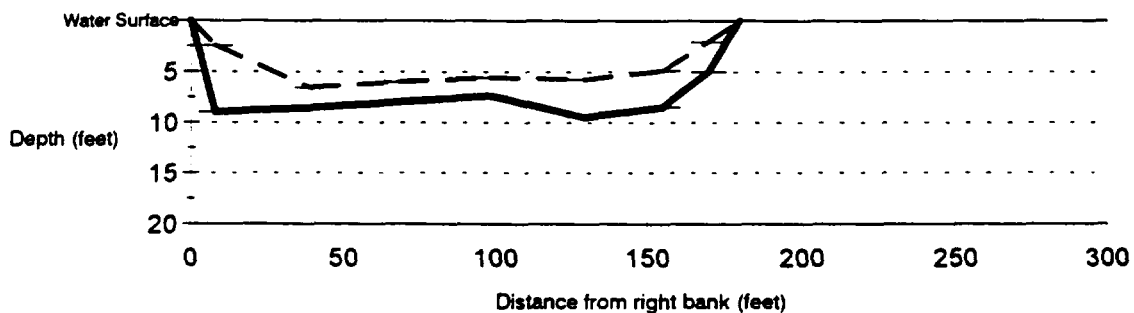
KPT121



KPT122



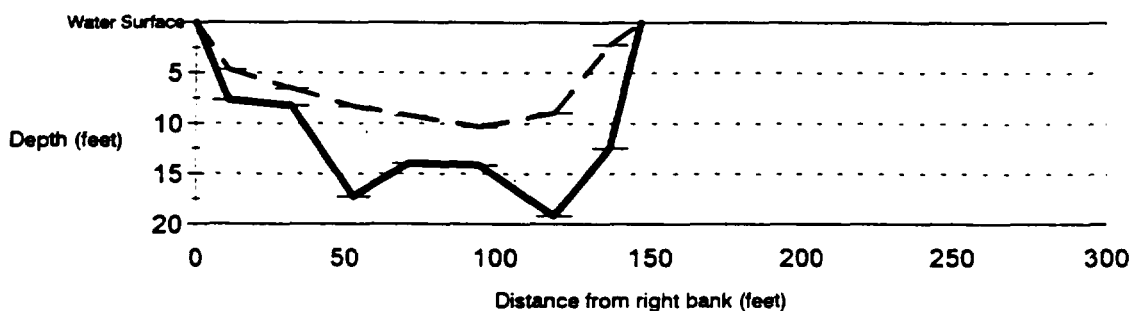
KPT123



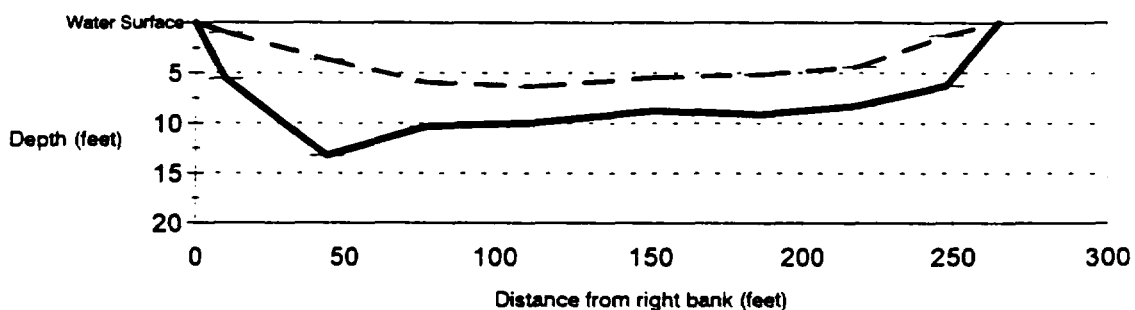
--- Top of Sediment — Bottom of Sediment

Sediment Characterization and Geostatistical Pilot Study
Appendix B - Kalamazoo River Transect Cross-Sections

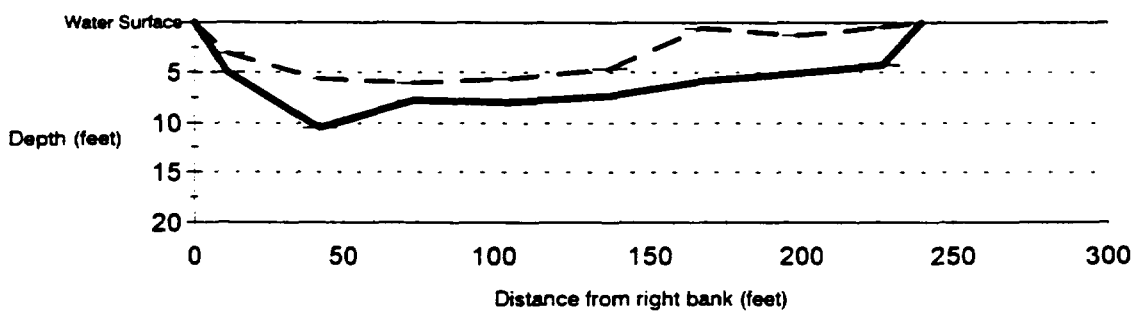
KPT124



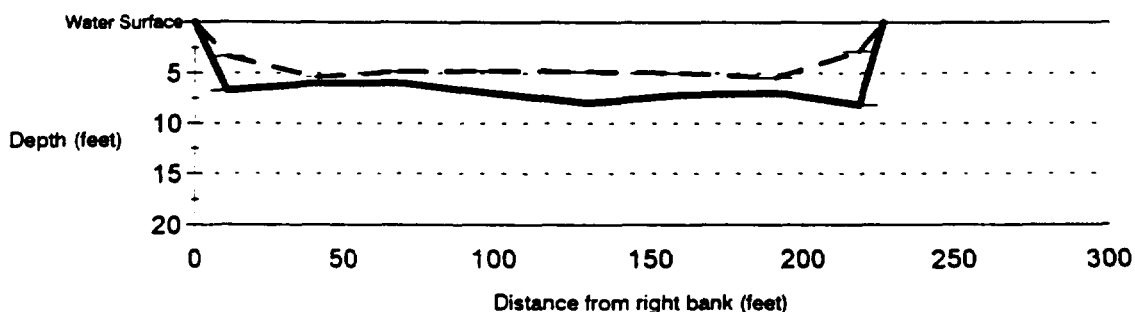
KPT125



KPT126



KPT127

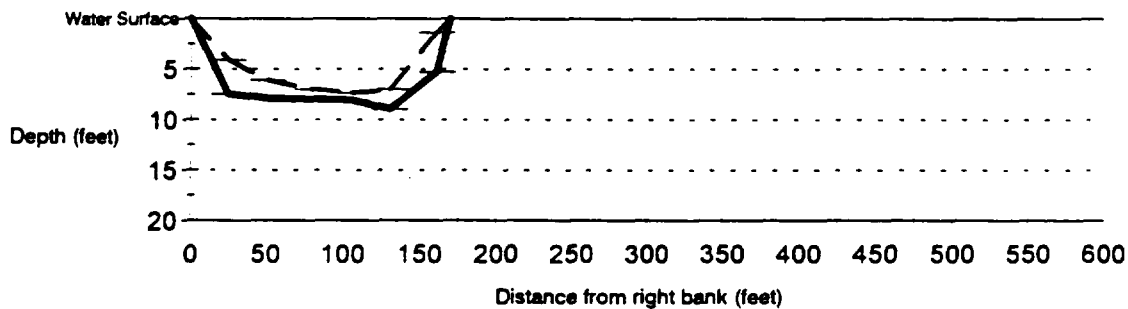


--- Top of Sediment — Bottom of Sediment

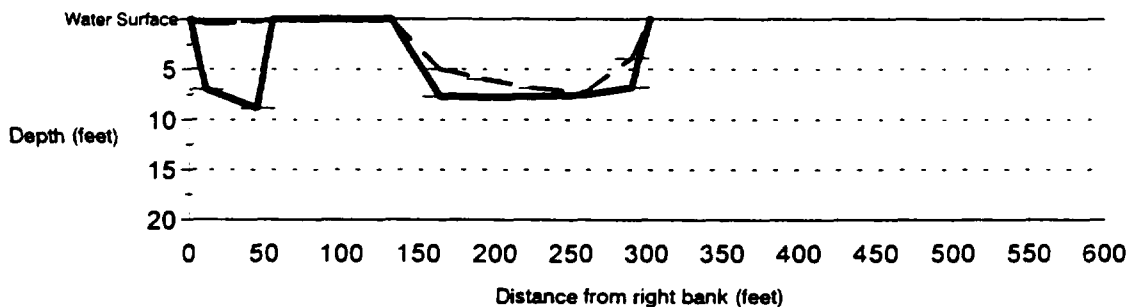
Sediment Characterization and Geostatistical Pilot Study
Appendix B - Kalamazoo River Transect Cross-Sections



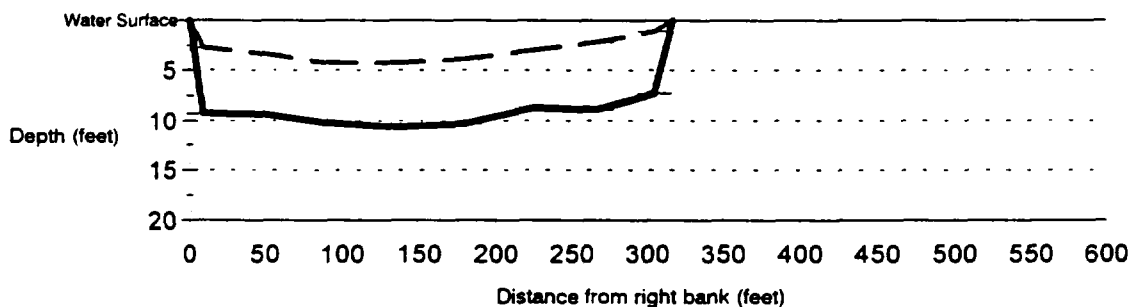
KPT128



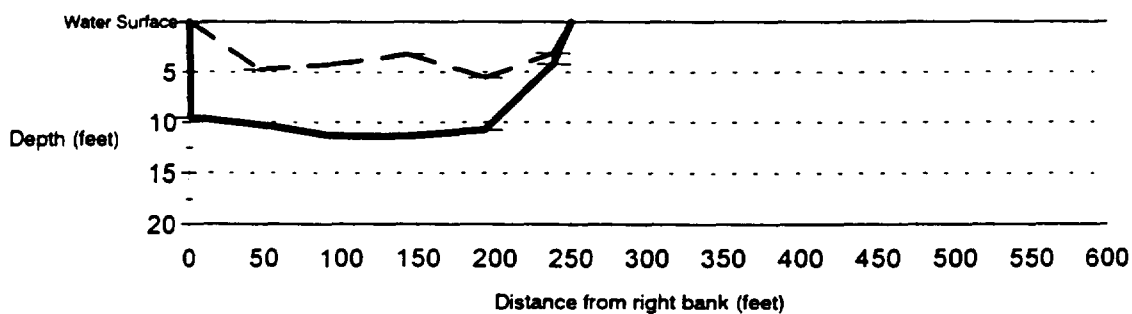
KPT129



KPT130



KPT131

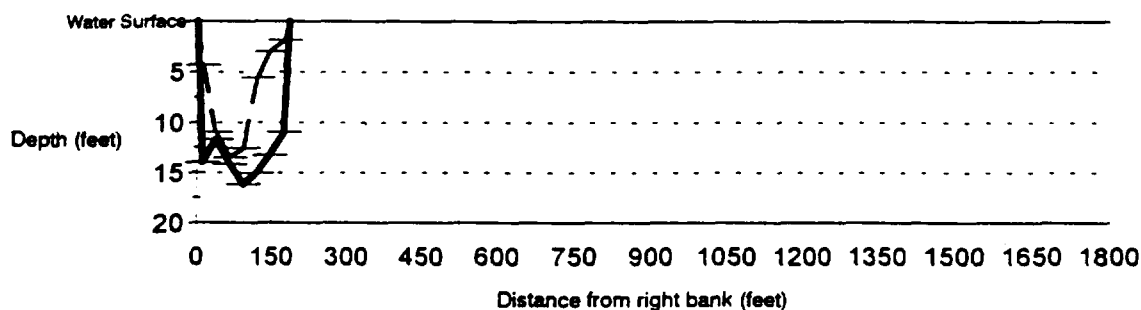


--- Top of Sediment — Bottom of Sediment

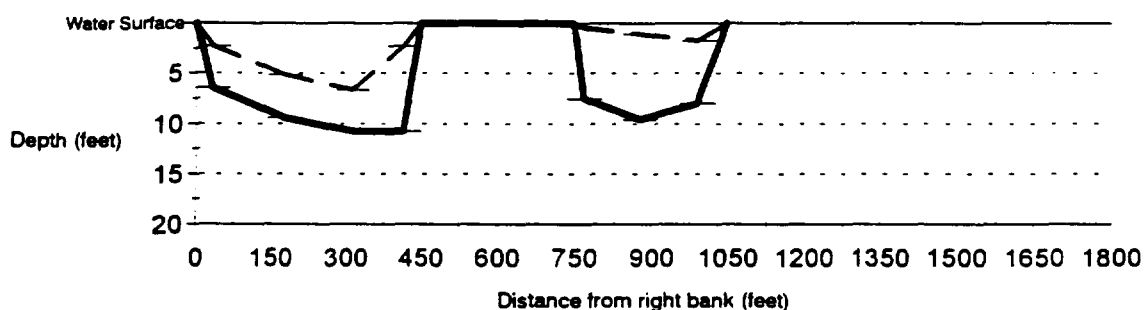
Sediment Characterization and Geostatistical Pilot Study
Appendix B - Kalamazoo River Transect Cross-Sections



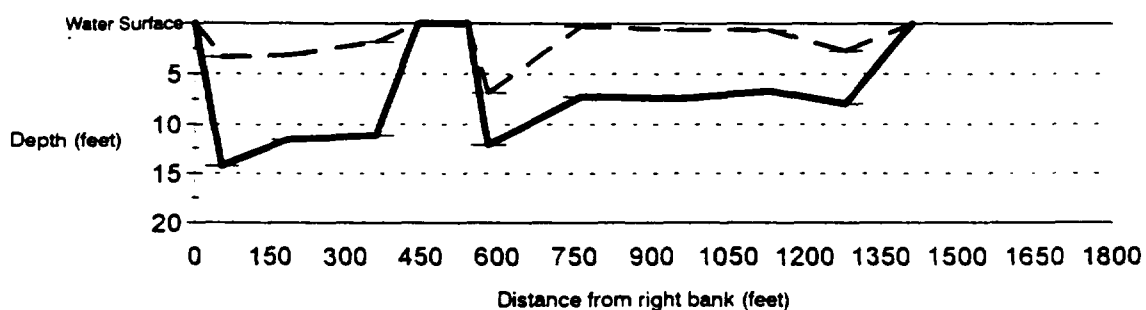
KPT132



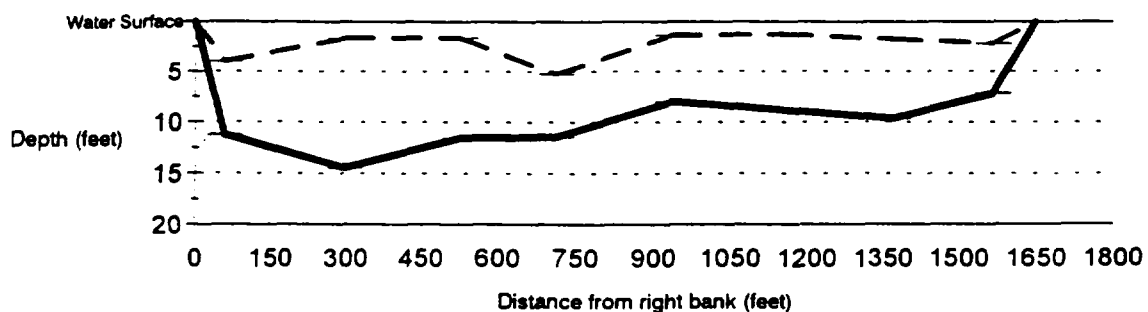
KPT133



KPT134



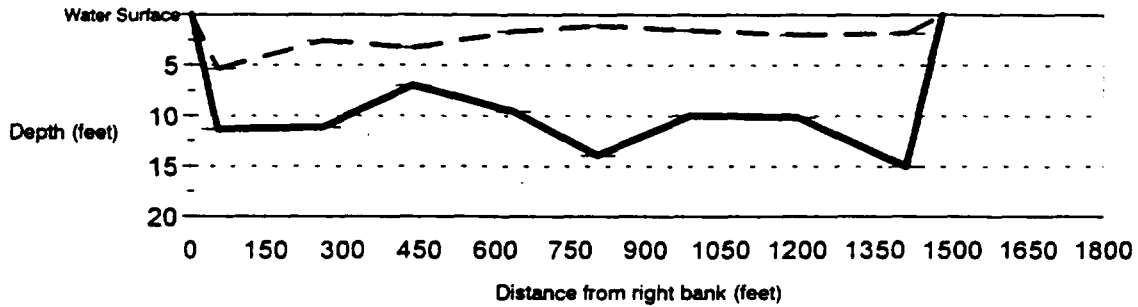
KPT135



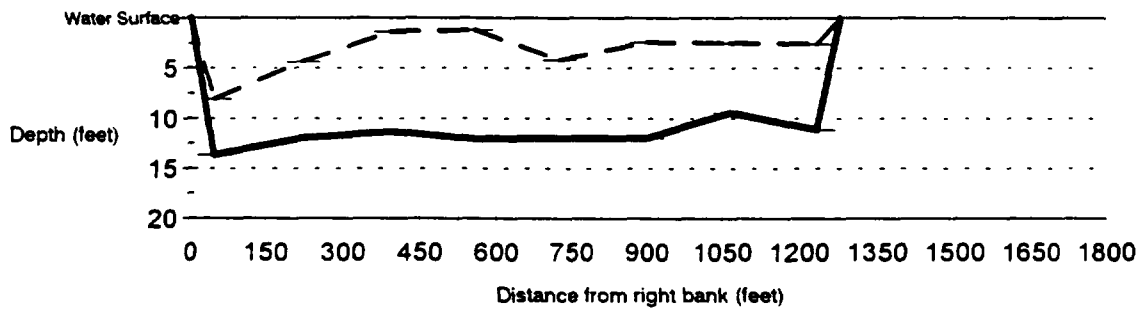
--- Top of Sediment — Bottom of Sediment

Sediment Characterization and Geostatistical Pilot Study
Appendix B - Kalamazoo River Transect Cross-Sections

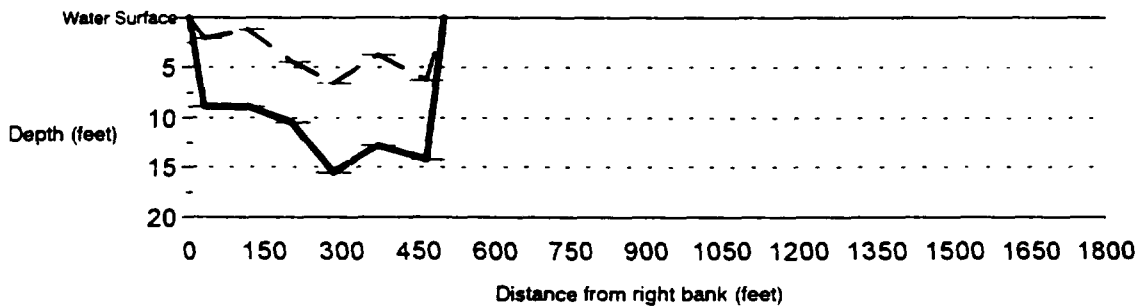
KPT136



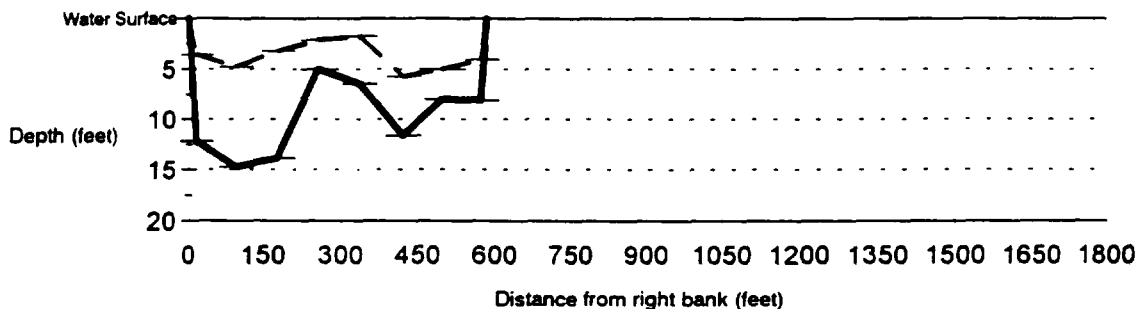
KPT137



KPT138

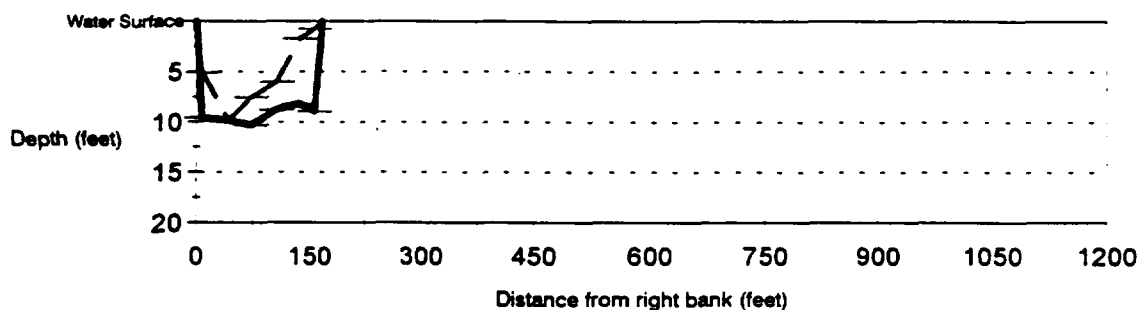


KPT139

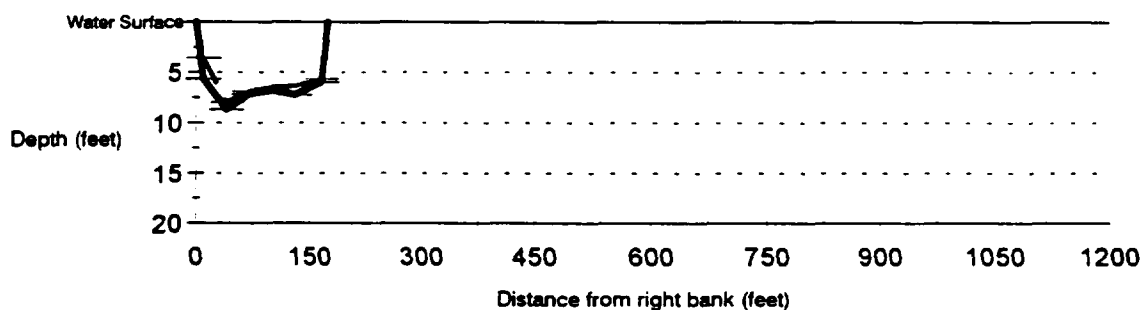


--- Top of Sediment — Bottom of Sediment

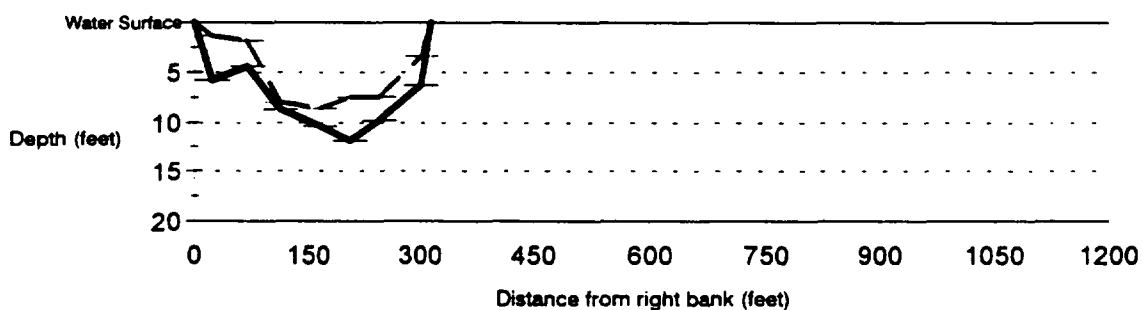
KPT140



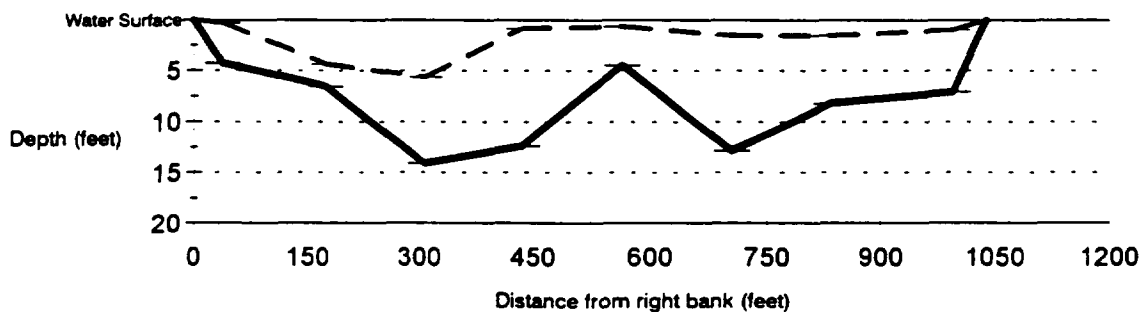
KPT141



KPT142



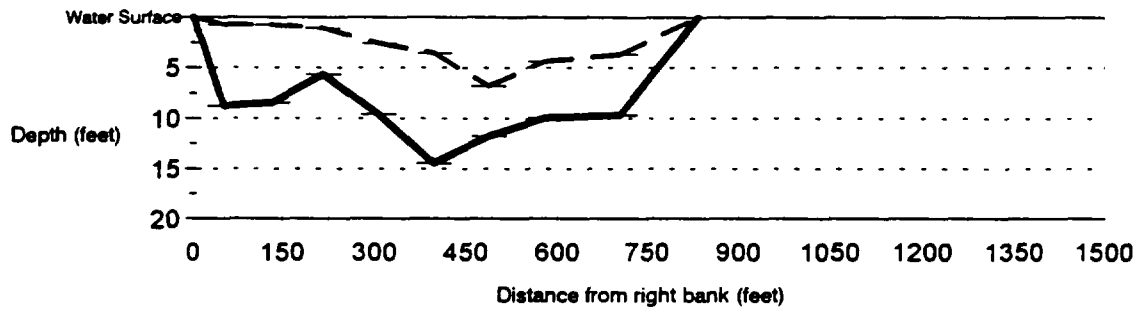
KPT143



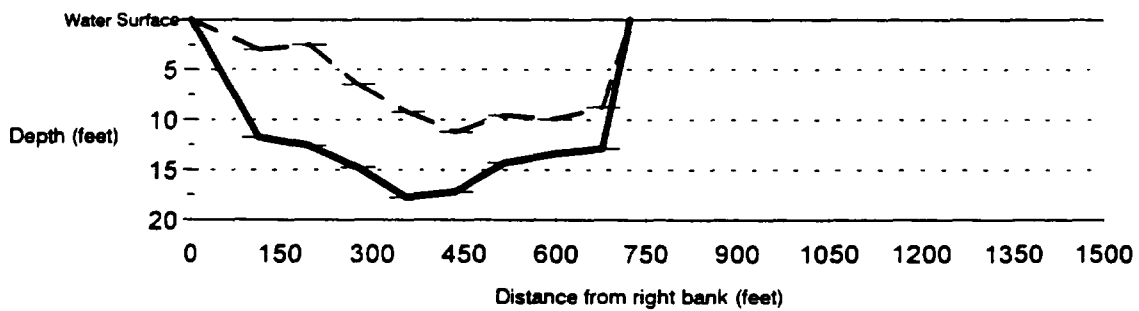
--- Top of Sediment — Bottom of Sediment

Sediment Characterization and Geostatistical Pilot Study
Appendix B - Kalamazoo River Transect Cross-Sections

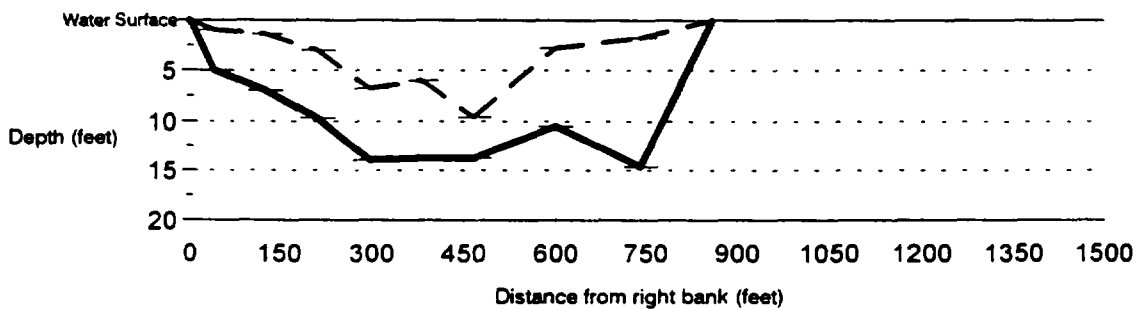
KPT145



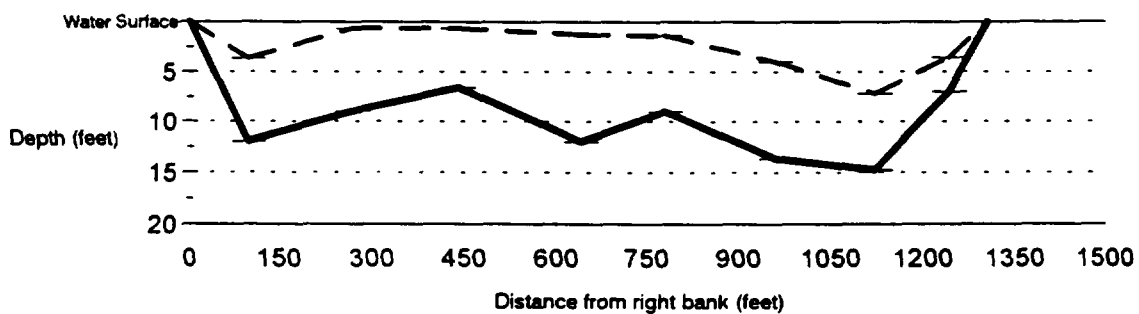
KPT146



KPT147

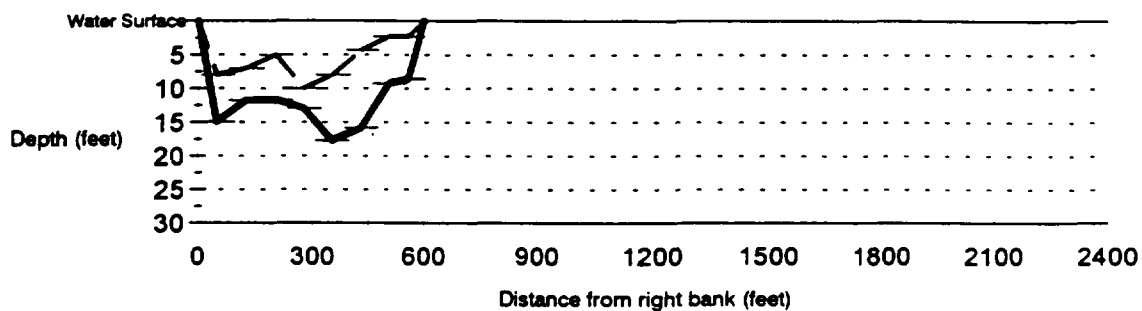


KPT148

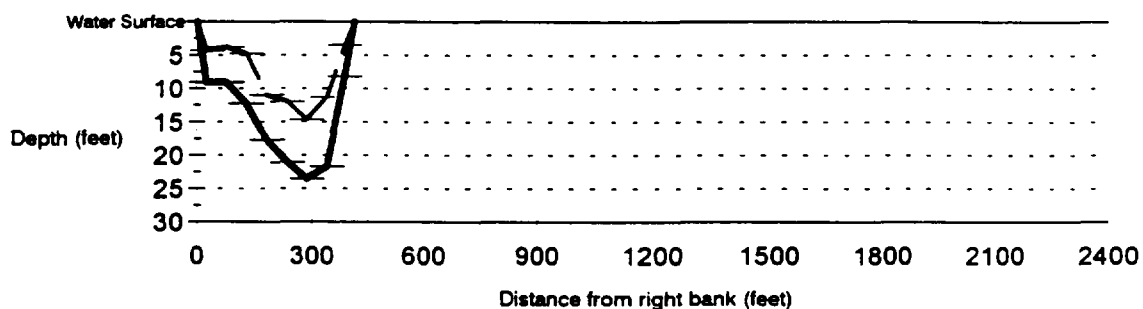


--- Top of Sediment — Bottom of Sediment

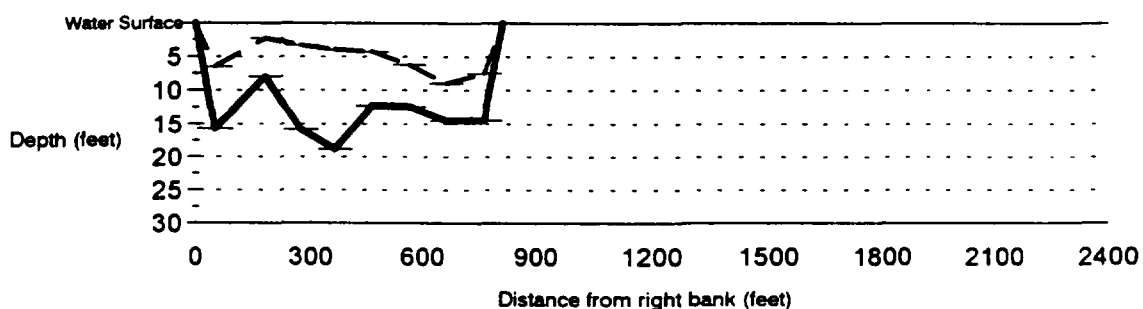
KPT149



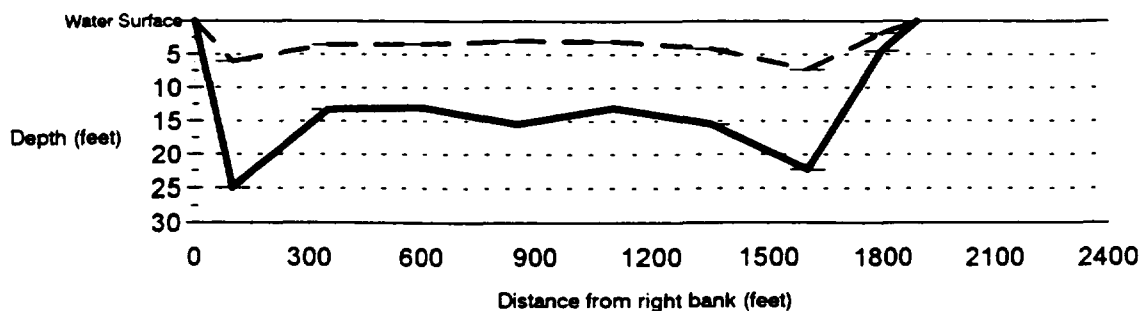
KPT150



KPT151



KPT152

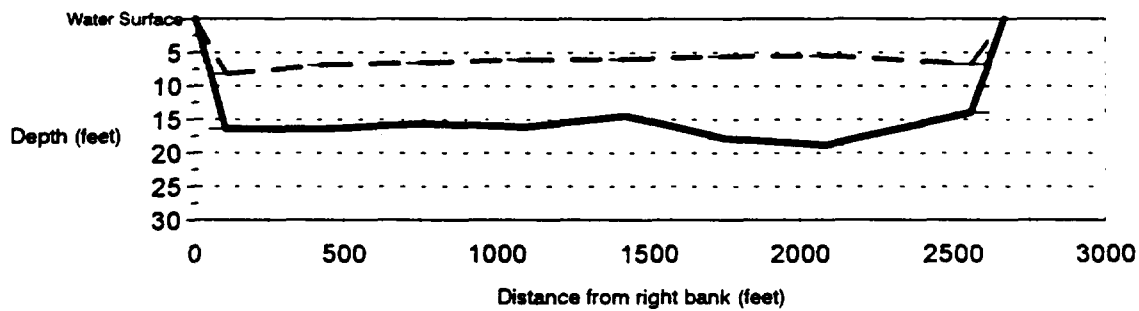


--- Top of Sediment — Bottom of Sediment

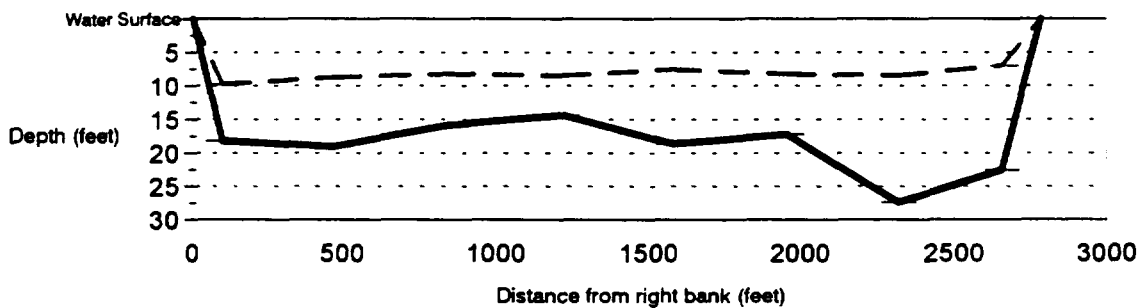
Sediment Characterization and Geostatistical Pilot Study
Appendix B - Kalamazoo River Transect Cross-Sections



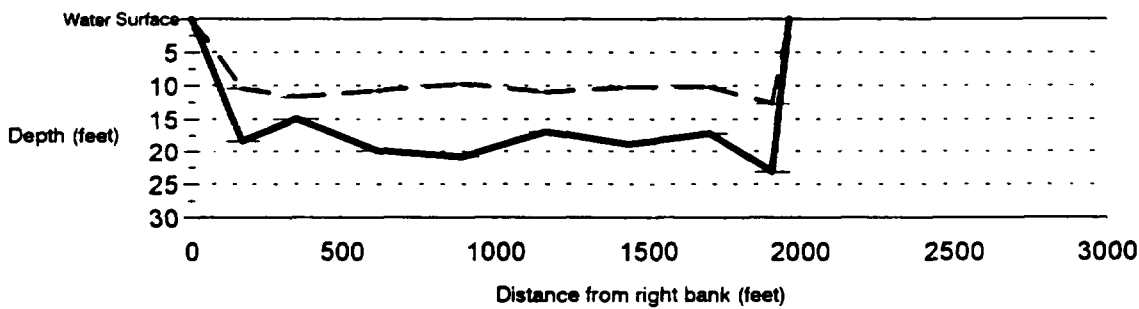
KPT153



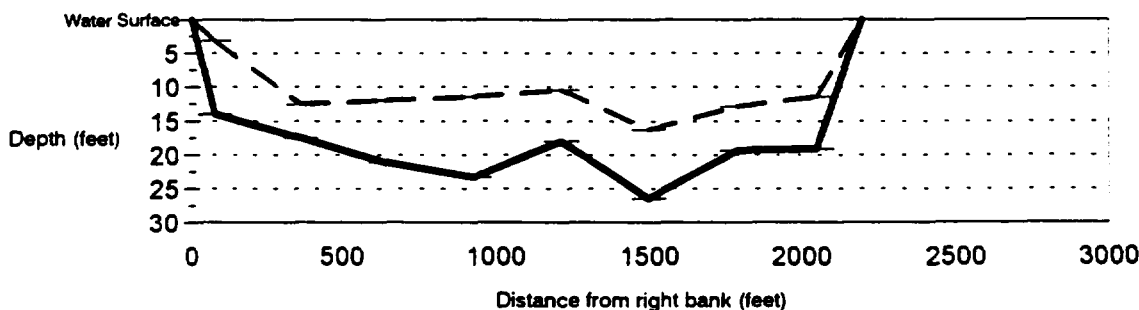
KPT154



KPT155



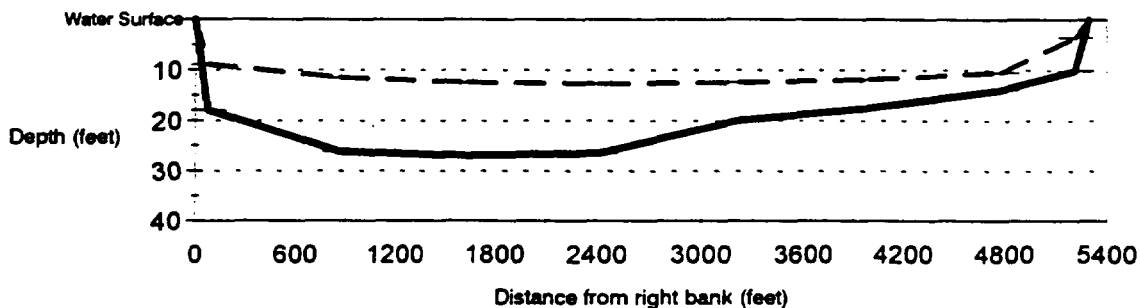
KPT156



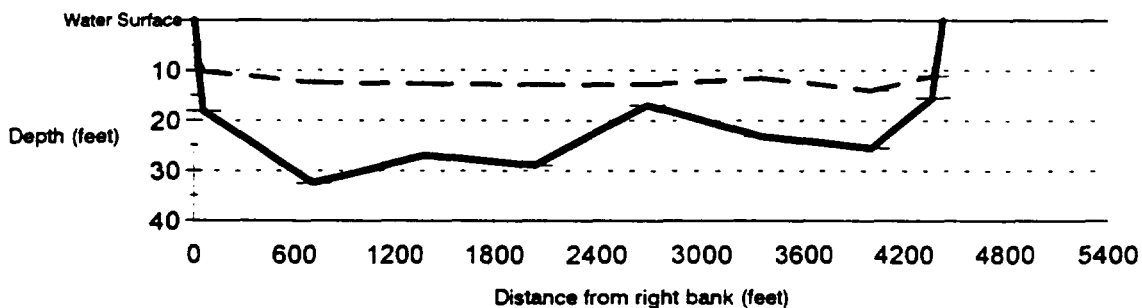
--- Top of Sediment — Bottom of Sediment

Sediment Characterization and Geostatistical Pilot Study
Appendix B - Kalamazoo River Transect Cross-Sections

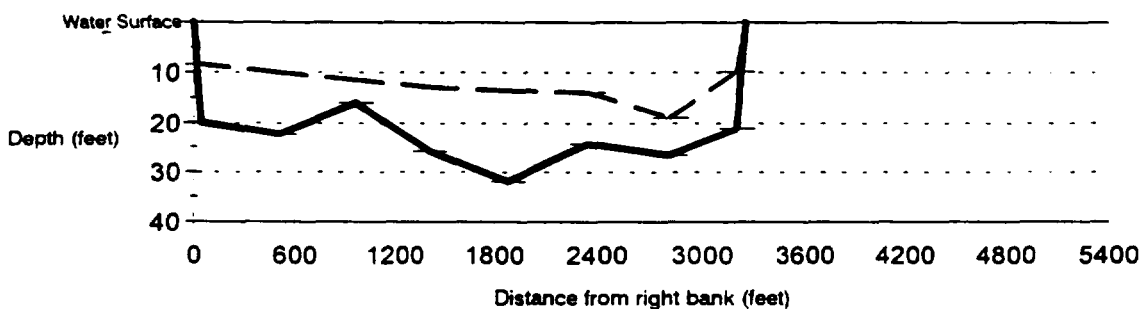
KPT157



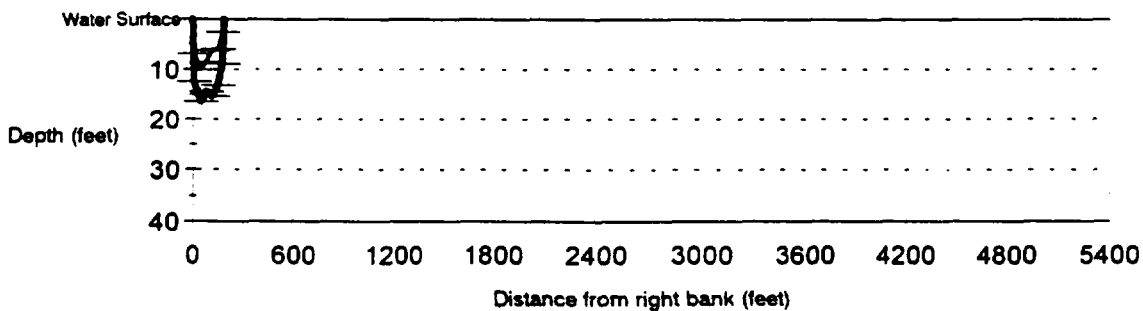
KPT158



KPT159



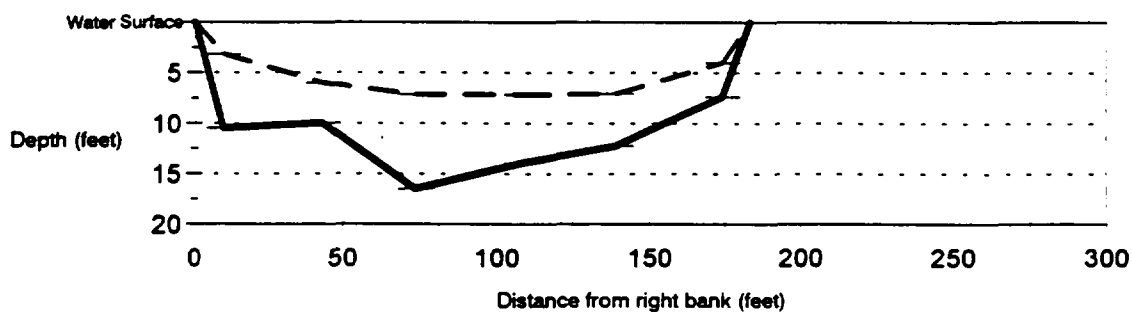
KPT160



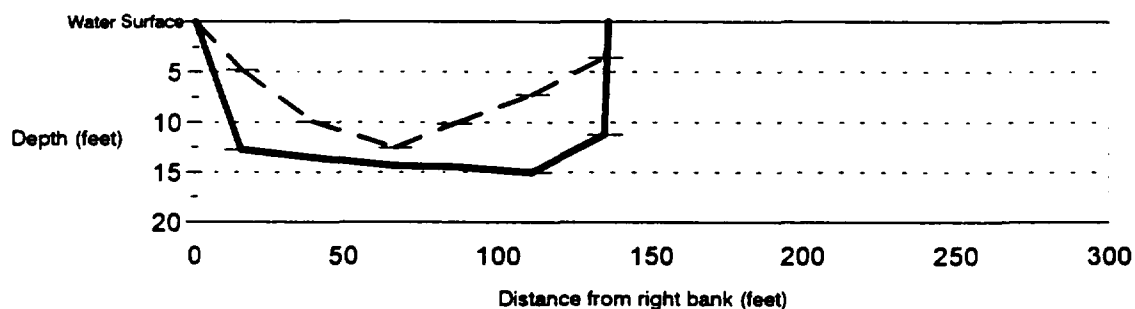
--- Top of Sediment — Bottom of Sediment

Sediment Characterization and Geostatistical Pilot Study
Appendix B - Kalamazoo River Transect Cross-Sections

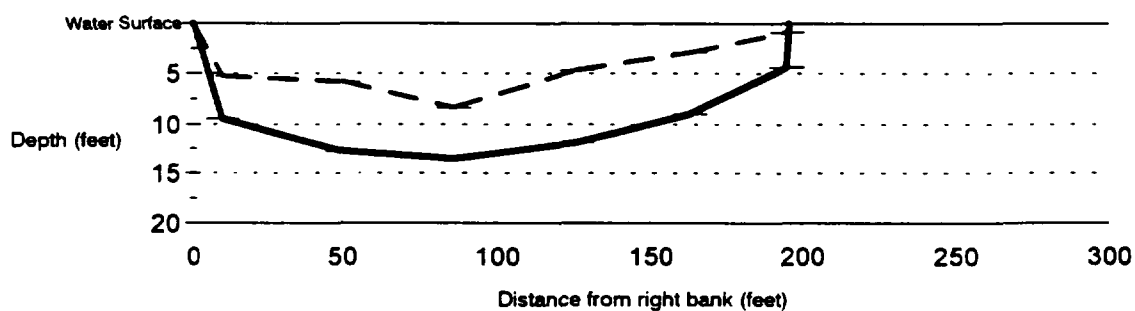
KPT161



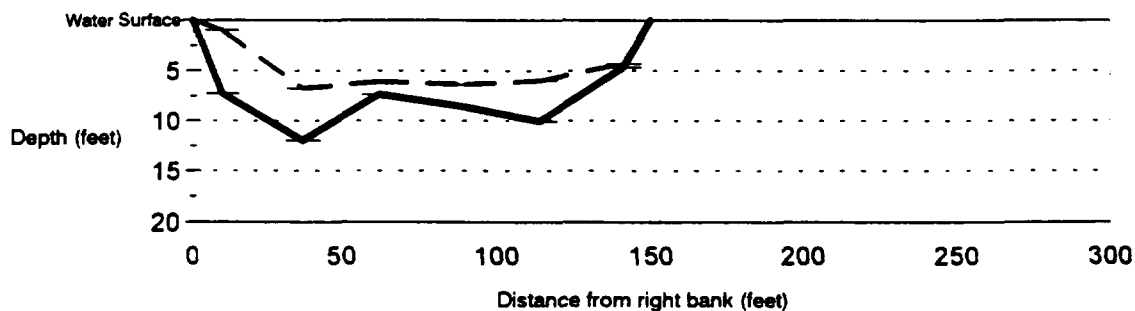
KPT162



KPT163



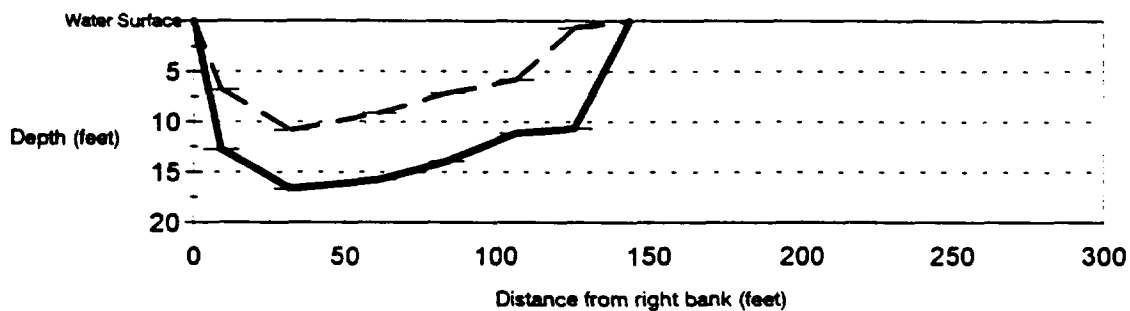
KPT164



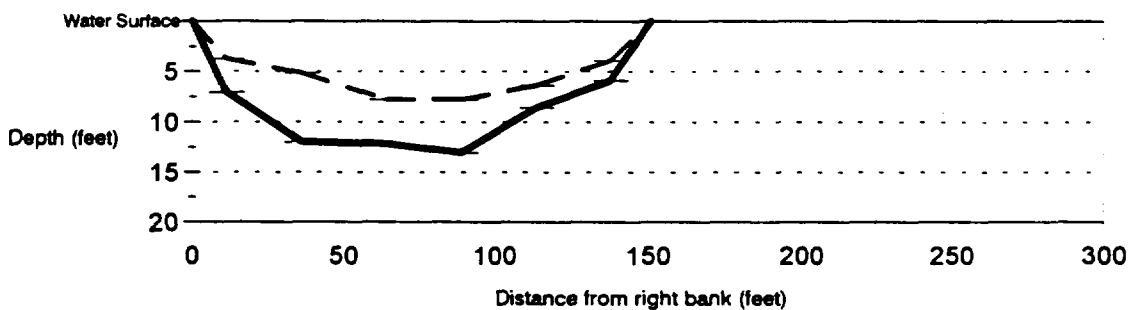
--- Top of Sediment — Bottom of Sediment

Sediment Characterization and Geostatistical Pilot Study
Appendix B - Kalamazoo River Transect Cross-Sections

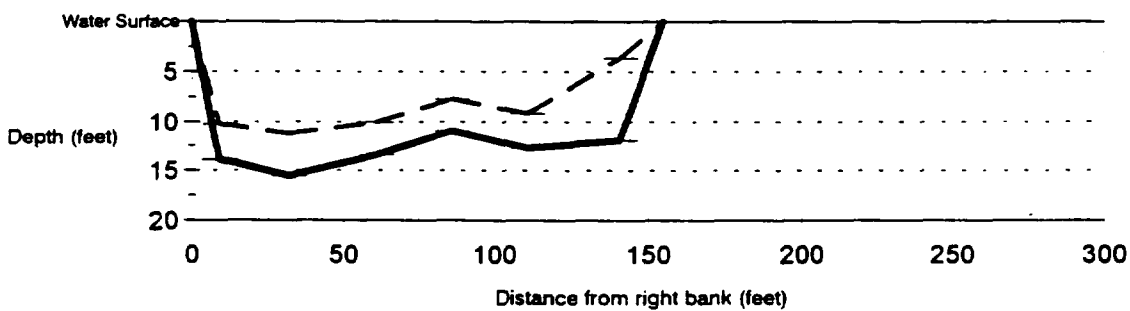
KPT165



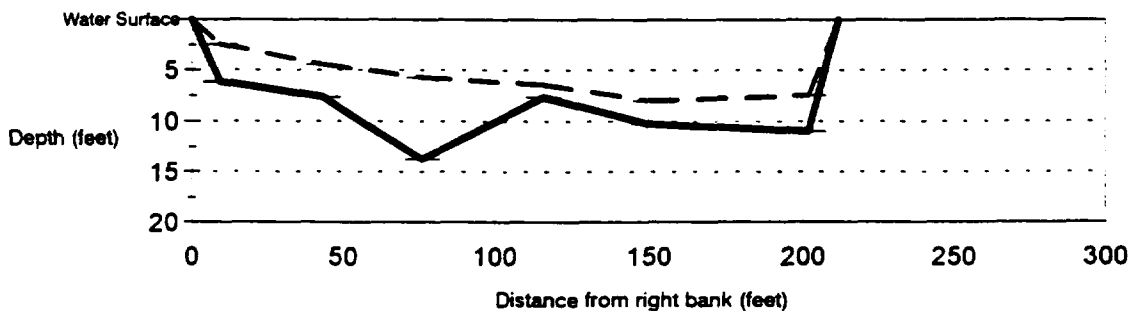
KPT166



KPT167



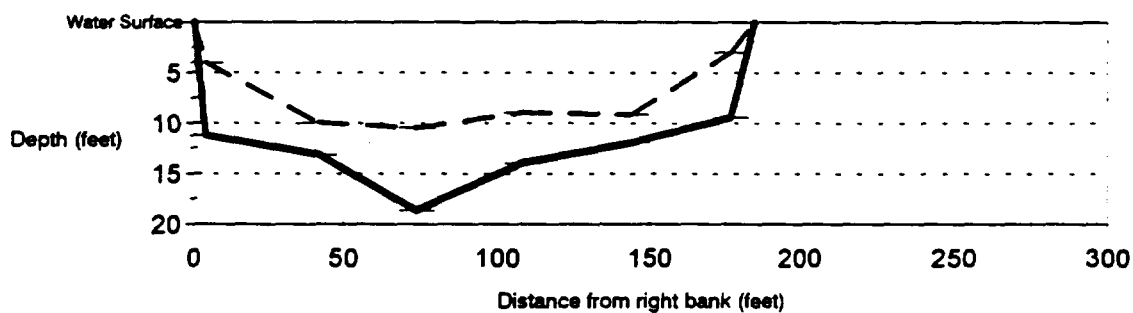
KPT168



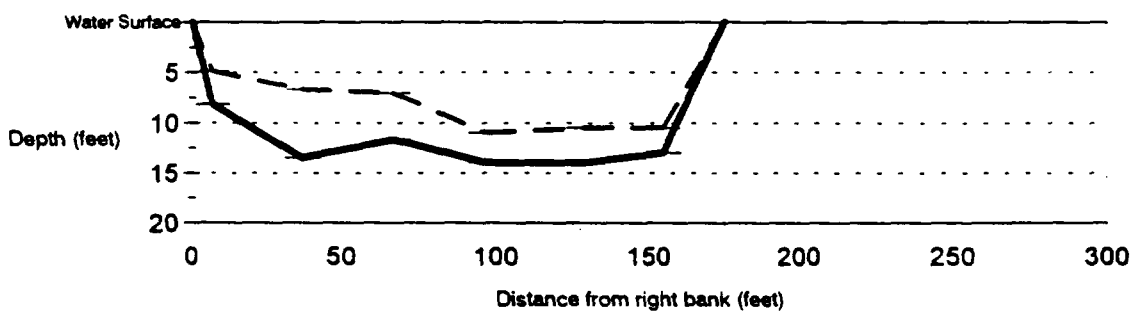
--- Top of Sediment — Bottom of Sediment

Sediment Characterization and Geostatistical Pilot Study
Appendix B - Kalamazoo River Transect Cross-Sections

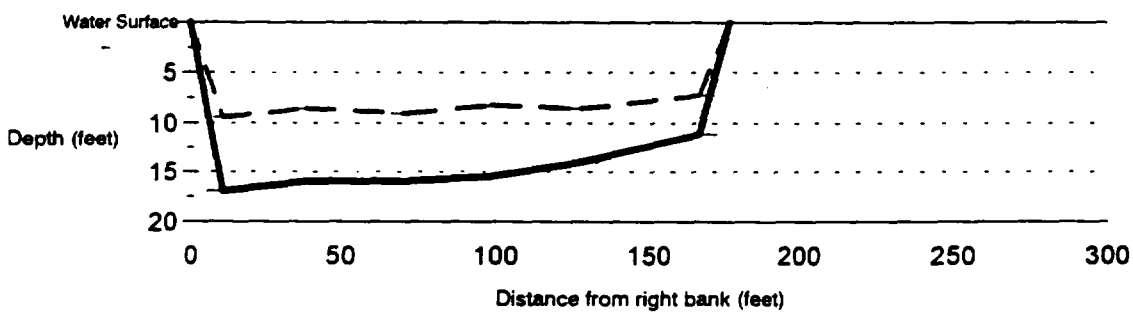
KPT169



KPT170



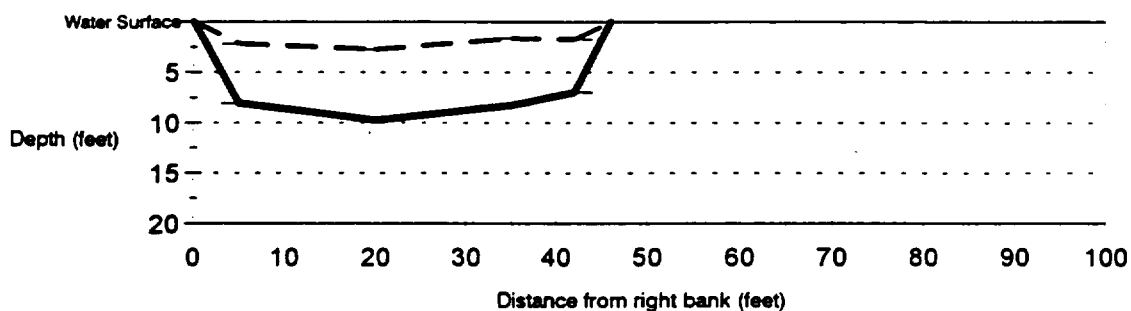
KPT171



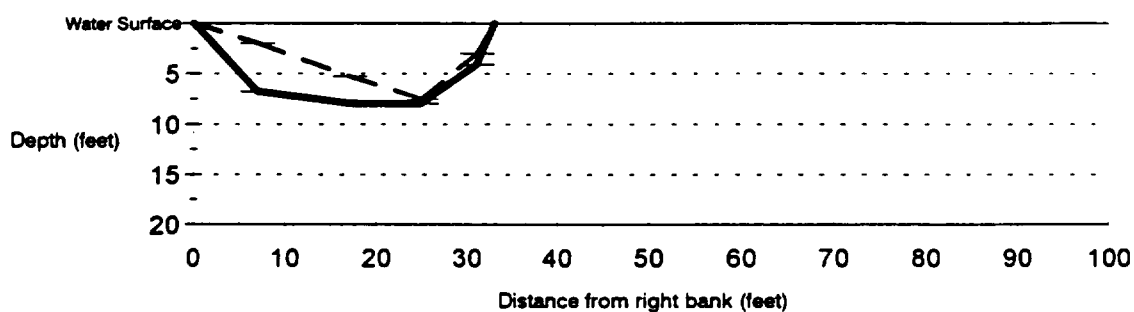
--- Top of Sediment — Bottom of Sediment

Sediment Characterization and Geostatistical Pilot Study
Appendix B - Kalamazoo River Transect Cross-Sections

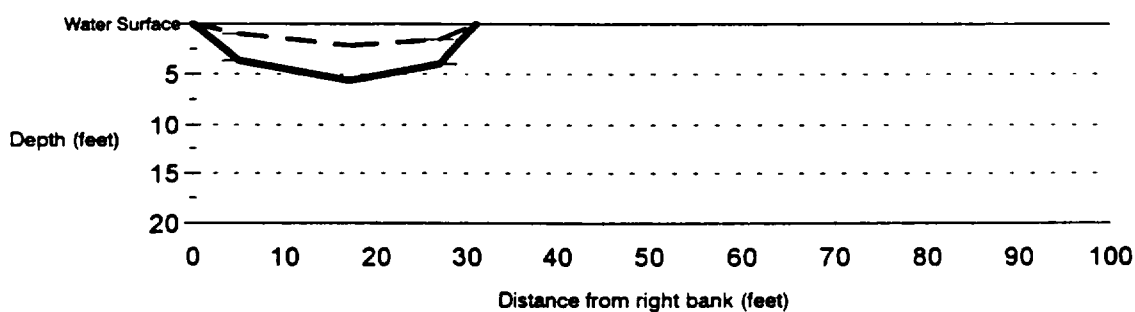
PPT1



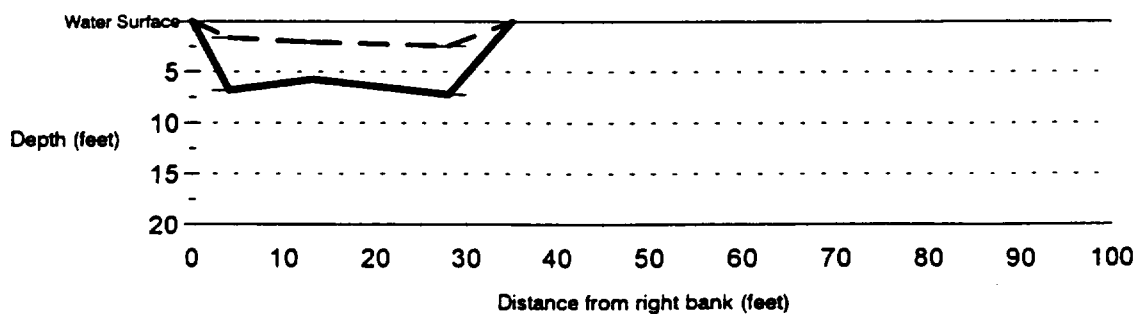
PPT2



PPT3



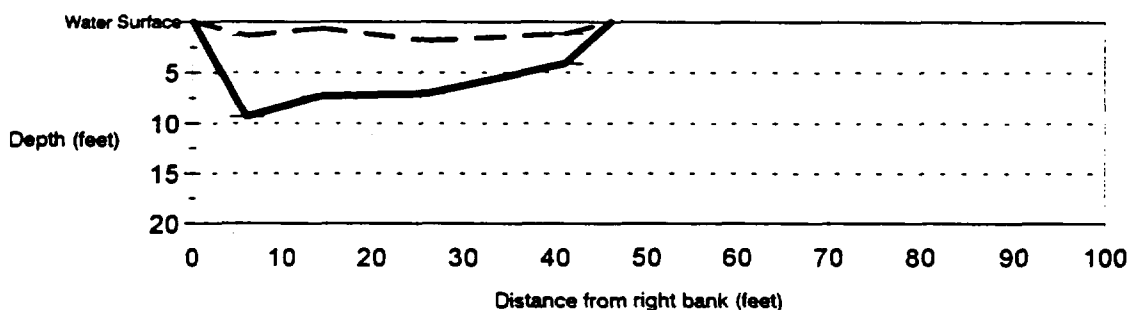
PPT4



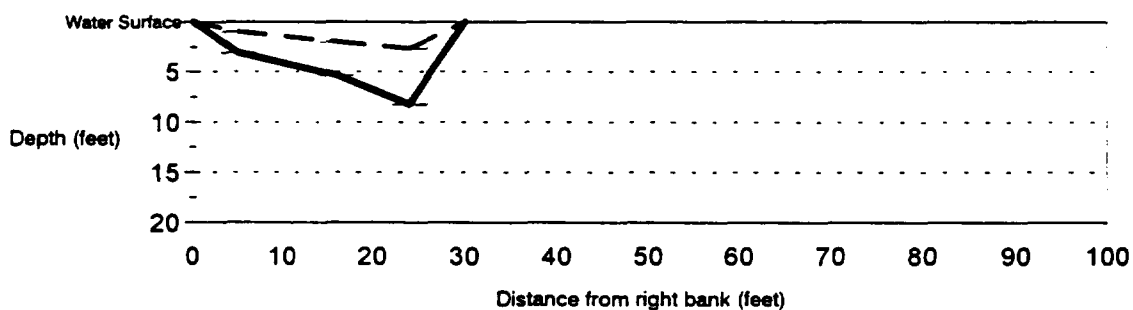
--- Top of Sediment — Bottom of Sediment

Sediment Characterization and Geostatistical Pilot Study
Appendix B - Kalamazoo River Transect Cross-Sections

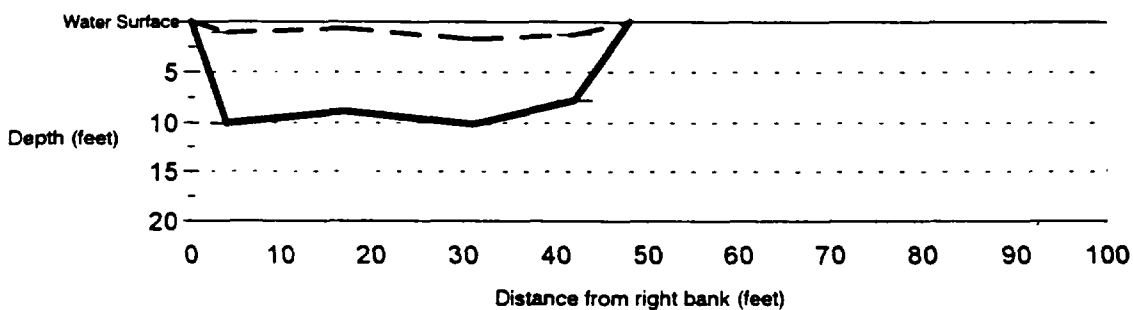
PPT5



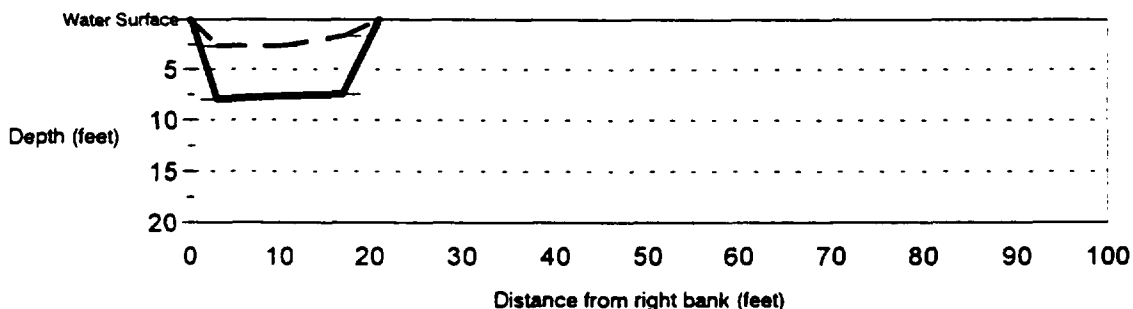
PPT6



PPT7



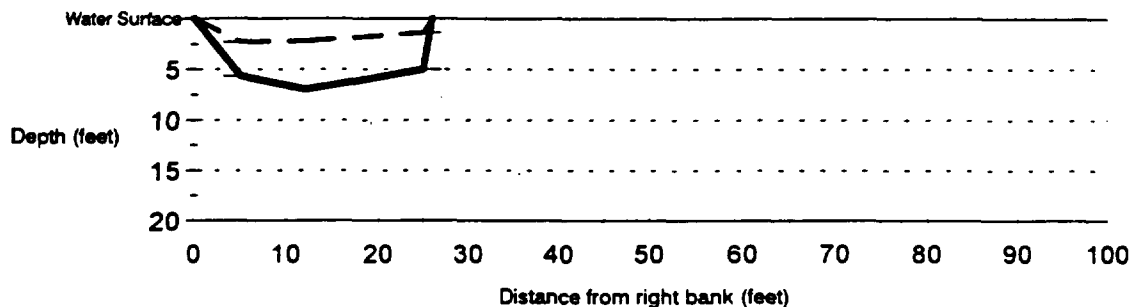
PPT8



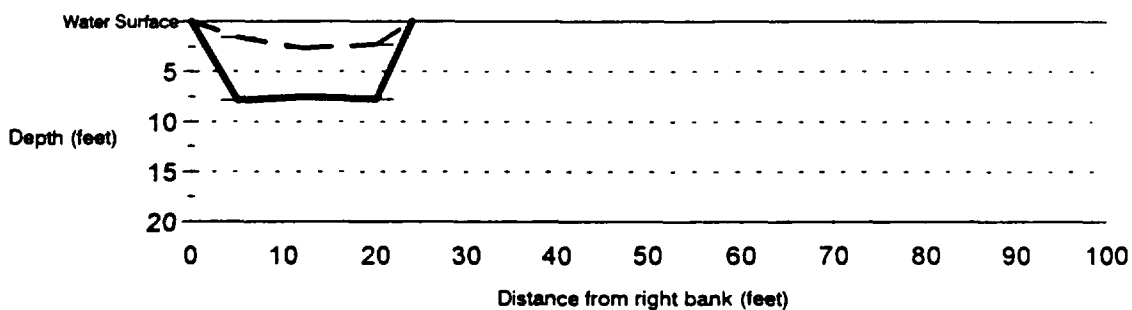
--- Top of Sediment — Bottom of Sediment

Sediment Characterization and Geostatistical Pilot Study
Appendix B - Kalamazoo River Transect Cross-Sections

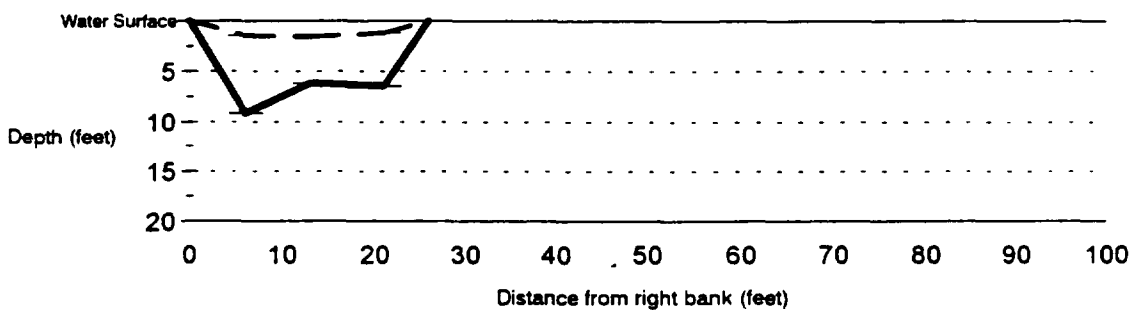
PPT9



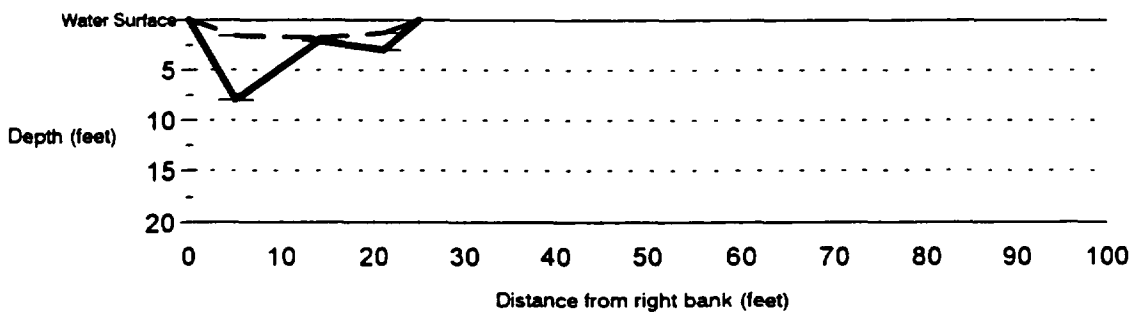
PPT10



PPT11



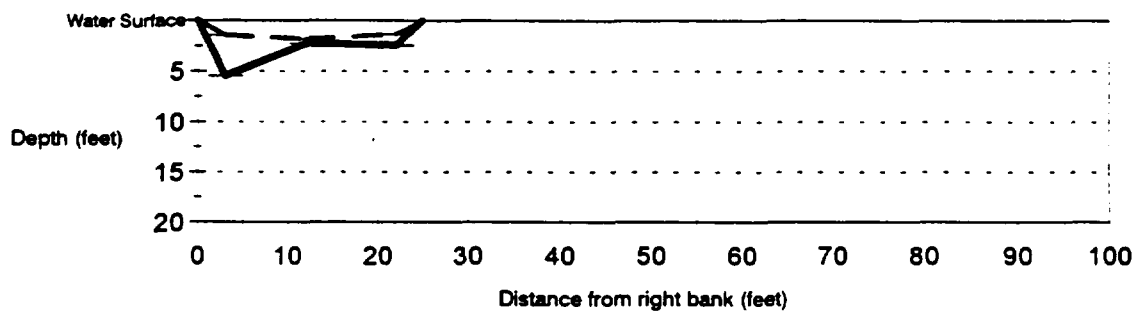
PPT12



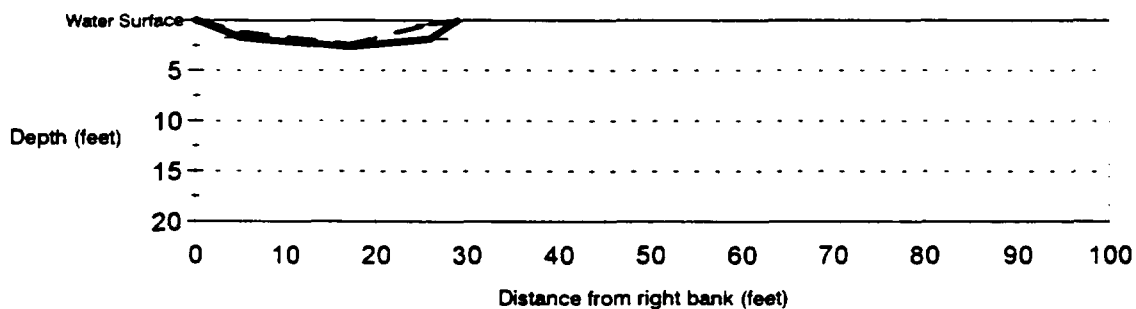
--- Top of Sediment — Bottom of Sediment

Sediment Characterization and Geostatistical Pilot Study
Appendix B - Kalamazoo River Transect Cross-Sections

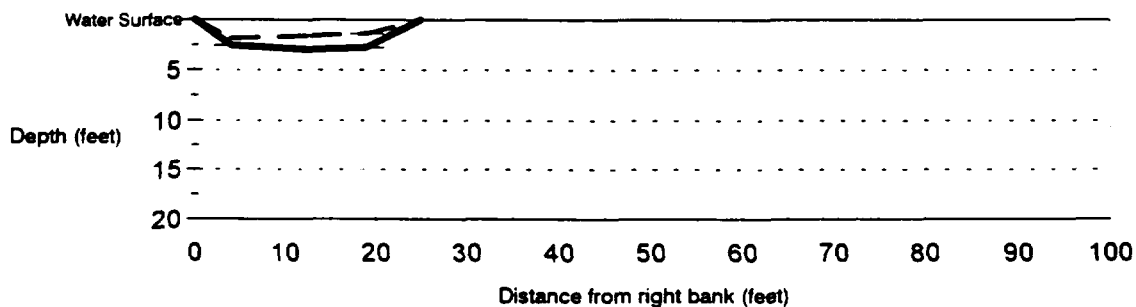
PPT13



PPT14



PPT15



--- Top of Sediment — Bottom of Sediment

APPENDIX C

QA/QC Review of Data - Summary of Precision and Accuracy

APPENDIX C

QA/QC Review of Data - Summary of Precision and Accuracy

C.1 Precision and Accuracy for PCB Laboratory Analyses

Recoveries for all four sets of MS/MSDs submitted were within acceptable control limits. Matrix spike recoveries for Aroclor 1242 ranged from 52 to 83 percent with an average of 67 percent, while recoveries for Aroclor 1254 ranged from 62 to 97 percent with an average of 76 percent. Blank spike recoveries were somewhat higher with Aroclor 1242 ranging from 68 to 106 percent recovery with an average of 80 percent, and Aroclor 1254 ranging from 77 to 116 percent with an average of 89 percent.

The precision of the matrix spikes as measured by the RPD between the MS and MSD recoveries ranged from 0 to 11 percent with an average of 4 percent for Aroclor 1242 and from 4 percent to 16 percent with an average of 11 percent for Aroclor 1254.

Review of the field duplicates showed acceptable precision for seven of the eight duplicate pairs with four of the seven replicating through non-detection. The RPDs of the duplicates ranged from 0 to 143 percent with an average of 31 percent. The USEPA Region V guidance considers differences to be significant when there is more than a factor of 5 difference in concentrations USEPA. This is roughly equivalent to a RPD of 133 percent.

Only 10 samples had either one or both surrogates outside of control limits. Qualifiers were added to the sample results where necessary.

Surrogate recoveries for tetrachloro-m-xylene (TCMX) ranged from 25 to 101 percent with an average of 72 percent. Recoveries for decachlorobiphenyl (DCB) ranged from 31 to 109 percent with an average of 84 percent.

No PCB were detected in any of the rinse blanks or instrument blanks. Traces of Aroclor 1268 were detected in the method blank associated with SDG 40090. Due to the possible identification of Aroclor 1268 as 1260, all samples in that SDG which contained PCB identified as 1260 were re-extracted and reanalyzed. In the cases where the re-extracted samples were found to contain no detectable amounts of Aroclor 1260, as was true for four of the five re-extracted samples, data from the re-extracted analyses were used.

**DATA REVIEW FOR
ALLIED PAPER, INC./PORTAGE CREEK/KALAMAZOO RIVER
SUPERFUND SITE**

**SDG# 40088
PCB ANALYSES**

GEOSTATISTICAL PILOT STUDY

Analyses performed by:

**Aquatec, Inc.
Colchester, Vermont**

Review performed by:

**Blasland & Bouck Engineers, P.C.
Syracuse, New York**

Summary

The following is an assessment of the PCB data package for SDG # 40088 for the Geostatistical Pilot Study sampling of river sediments from the Allied Paper, Inc./Portage Creek/Kalamazoo River Superfund Site. Included with this assessment are the data review check sheets used in the review of the package and corrected sample results. Analyses were performed on the following samples:

Sample ID	Lab ID	Matrix	Sample Date
K22520	200823	sediment	10/12/93
K22521	200824	sediment	
K22522	200825	sediment	
K22523	200826	sediment	
K22524	200827	sediment	
K22525	200828	sediment	
K22526	200829	sediment	
K22527	200830	sediment	
K22528	200831	sediment	
K22529	200832	sediment	
K22530	200833	sediment	
K22531	200834	sediment	
K22532	200835	sediment	
K22533	200836	rinse blank	10/13/93
K22534	200837	rinse blank	
K22535	201190	sediment	
K22536	201191	sediment	
K22537	201192	sediment	
K22538	201193	sediment	
K22541*	201194	sediment	

- * MS/MSD performed on this sample

Introduction

Analyses were performed according to the USEPA SW-846 method 8081, modified for PCB only analysis.

The data review process is intended to evaluate the data on a technical basis. It is assumed that the data package represents the best efforts of the laboratory and had already been subjected to adequate and sufficient quality review prior to submission.

During the review process, laboratory qualified and unqualified data are verified against the supporting documentation. Based on this evaluation, qualifier codes may be added, deleted, or modified by the data reviewer. Results are qualified with the following codes in accordance with National Functional Guidelines:

- U The compound was analyzed for but not detected. The associated value is the compound quantitation limit.
- J The compound was positively identified; however, the associated numerical value is an estimated concentration only.
- B The compound has been found in the sample as well as its associated blank, its presence in the sample may be suspect.
- N The analysis indicates the presence of a compound for which there is presumptive evidence to make a tentative identification.
- JN The analysis indicates the presence of a compound for which there is presumptive evidence to make a tentative identification. The associated numerical value is an estimated concentration only.
- E The compound was quantitated above the calibration range.
- D Concentration is based on a diluted sample analysis.
- UJ The compound was not detected above the reported sample quantitation limit. However, the reported limit is approximate and may or may not represent the actual limit of quantitation.
- R The sample results are rejected.

Two facts should be noted by all data users. First, the "R" flag means that the associated value is unusable. In other words, due to significant QC problems, the analysis is invalid and provides no information as to whether the compound is present or not. "R" values should not appear on data tables because they cannot be relied upon, even as a last resort. The second fact to keep in mind is that no compound concentration, even if it has passed all QC test, is guaranteed to be accurate. Strict QC serves to increase confidence in data but any value potentially contains error.

The data presented in the package has been derived using a procedure developed by Aquatec, Inc. in an attempt to improve the analytical process of calibration, identification, and quantitation of PCBs as Aroclors. Key components of this procedure include:

Calibration

The response function of the electron capture detector is inherently non-linear, and while significant linearization is achieved for this detector by electronic means, some non-linearity remains. Power function linearization is used to "straighten the curve" and allow the use of response factors for calibration purposes.

During the initial calibration a response factor is calculated for each peak in the individual Aroclors.

A weighted response factor calculation has been used to adjust for non-linearity at the low end of the calibration curve.

Identification

Peak retention times are relative. Retention times are in set windows relative to the time markers DCB and TCMX. Time markers adjust for minor variations in column flow or instrument condition and allow the use of very tight windows which minimizes the number of both false positive and false negative peak identifications.

The determination of "which Aroclor or mixture of Aroclors will produce a chromatogram most similar to that of the residue" is made by expressing the unknown sample chromatogram as a linear combination of the Aroclors. The "most similar" Aroclor or mixture of Aroclors is determined by using a least squares minimization of the difference between the unknown chromatogram and the linear combination of Aroclors. This is similar to the procedure presented by L.E. Slivon, P.M. Schumacher and A. Alford-Stevens for the determination of Aroclor composition from GC/MS level of chlorination results.

Identification/quantitation of Aroclors in samples is based on the combined response of two columns, typically RTX-5 and RTX-35. The pooling of response combines the unique qualities of both columns to derive a more defined Aroclor pattern which is less likely to be affected by interferences. Identification/quantitation data for the individual columns is provided in the package and can be used as a check on the combined column results.

Data Assessment

1. Holding Time

The specified holding times for PCB analyses on soil samples is 10 days from date of sample receipt to extraction and 40 days from extraction to analysis. No deviations from these holding times were noted.

2. Blank Contamination

Quality assurance blanks, i.e., method, field or rinse blanks, are prepared to identify any contamination which may have been introduced in to the samples during sample preparation or field activity. Method blanks measure laboratory contamination. Field and rinse blanks measure contamination of samples during field operations.

No target compounds were detected in the method blanks, rinse blanks, or instrument blanks.

3. System Performance

The system performance was acceptable for both columns.

4. Calibration

Satisfactory instrument calibration is established to insure that the instrument is capable of producing acceptable quantitative data. An initial calibration demonstrates that the instrument is capable of giving acceptable performance at the beginning of an experimental sequence. The continuing calibration verifies that the instrument is giving satisfactory daily performance.

4.1 Initial Calibration

The method allows a maximum RSD of 20%. The %RSD was within acceptable limits for all Aroclors.

4.2 Continuing Calibration

A maximum %D of 15 is allowed. All continuing calibrations were within the specified limits.

5. Surrogates / System Monitoring Compounds

All samples to be analyzed for organic compounds are spiked with surrogate compounds prior to sample preparation to evaluate overall laboratory performance and efficiency of the analytical technique.

Recoveries were low for one surrogate in sample K22541-MSD. No qualifiers have been added to the spike based on the recovery. All other surrogate recoveries were within acceptable limits.

6. Compound Identification

The determination of Aroclor presence is made by expressing the unknown sample chromatogram as a linear combination of the Aroclors. The most similar Aroclor or mixture of Aroclors is determined by using a least squares minimization of the difference between the unknown chromatogram and the linear combination of Aroclors.

Identification/quantitation of Aroclors is based on the combined response of the RTX-5 and RTX-35 columns. Identification/quantitation data for the individual columns is provided in the package and has been used as a check on the combined column results.

A review of the sample chromatograms indicate that the Aroclors have been correctly identified/quantitated for all samples.

The quantitated concentration between the combined and both individual columns were within acceptable limits for all samples.

7. Matrix Spike/Matrix Spike Duplicate

Matrix spike and matrix spike duplicate data are used to assess the precision and accuracy of the analytical method.

All matrix spike recoveries and relative percent differences between recoveries were within acceptable limits.

8. Field Duplicates

Results for duplicate samples are summarized below:

Sample	Result	Duplicate Sample	Result	RPD*
K22527	1242 - 29J	K22528	1248 - 25J	14.8%

* RPD calculation based on total PCB content

The RPD result is within acceptable limits.

9. System Performance and Overall Assessment

Overall system performance was acceptable. Other than those deviations specifically mentioned in this review, the overall data quality is within the guidelines listed in the analytical method.

DATA REVIEW CHECKLIST

PCB Data Review Checklist

	YES	NO	NA
<u>Data Completeness and Deliverables</u>			
Is there a narrative or cover letter present?	<u>X</u>	<u> </u>	<u> </u>
Are the samples numbers included in the narrative?	<u>X</u>	<u> </u>	<u> </u>
Are the sample chain-of-custodies present?	<u>X</u>	<u> </u>	<u> </u>
Do the chain-of-custodies indicate any problems with sample receipt or sample condition?	<u> </u>	<u>X</u>	<u> </u>
<u>Holding Times</u>			
Have any holding times been exceeded?	<u> </u>	<u>X</u>	<u> </u>
<u>Surrogate Recovery</u>			
Are surrogate recovery forms present?	<u>X</u>	<u> </u>	<u> </u>
Are all the samples listed on the appropriate surrogate recovery form?	<u>X</u>	<u> </u>	<u> </u>
Are the outliers correctly marked with an asterisk?	<u>X</u>	<u> </u>	<u> </u>
Were recoveries of TCMX or DCB outside of specified limits for any sample or blank?	<u>X</u>	<u> </u>	<u> </u>
If yes, were the samples reanalyzed?	<u> </u>	<u>X</u>	<u> </u>
<u>Matrix Spikes</u>			
Is there a matrix spike recovery form present?	<u>X</u>	<u> </u>	<u> </u>
Were matrix spikes analyzed at the required frequency?	<u>X</u>	<u> </u>	<u> </u>
How many spike recoveries were outside of QC limits?			
<u> 0 </u> out of <u> 4 </u>			
How many RPDs for matrix spike and matrix spike duplicate were outside of QC limits?			
<u> 0 </u> out of <u> 2 </u>			
<u>Blanks</u>			
Is a Method Blank Summary Form present?	<u>X</u>	<u> </u>	<u> </u>
Has a method blank been analyzed for each set of samples or for each 20 samples, whichever is more frequent?	<u>X</u>	<u> </u>	<u> </u>
Has an instrument blank been analyzed at the beginning of each 12 hour period following the initial calibration?	<u>X</u>	<u> </u>	<u> </u>

PCB Data Review Checklist - Page 2

	YES	NO	NA
Is the chromatographic performance acceptable for each instrument?	<u>X</u>	<u> </u>	<u> </u>
Do any method/reagent/instrument blanks have positive results?	<u> </u>	<u>X</u>	<u> </u>
Do any field/rinse blanks have positive results?	<u> </u>	<u>X</u>	<u> </u>
Are there field/rinse/equipment blanks associated with every sample?	<u>X</u>	<u> </u>	<u> </u>
<u>Calibration and GC Performance</u>			
Are the following chromatograms and data printouts present?			
Aroclor 1016/1260	<u>X</u>	<u> </u>	<u> </u>
Aroclor 1221	<u>X</u>	<u> </u>	<u> </u>
Aroclor 1232	<u>X</u>	<u> </u>	<u> </u>
Aroclor 1242	<u>X</u>	<u> </u>	<u> </u>
Aroclor 1248	<u>X</u>	<u> </u>	<u> </u>
Aroclor 1254	<u>X</u>	<u> </u>	<u> </u>
Instrument Blanks	<u>X</u>	<u> </u>	<u> </u>
Are Initial Calibration Summary Forms present and complete for each column and analytical sequence?	<u>X</u>	<u> </u>	<u> </u>
Are the linearity criteria for the initial analyses within limits for both columns (20% RSD)	<u>X</u>	<u> </u>	<u> </u>
Have all samples been injected within a 12 hour period beginning with the injection of an instrument blank?	<u>X</u>	<u> </u>	<u> </u>
Is a Calibration Verification Summary Form present and complete for each continuing standard analyzed?	<u>X</u>	<u> </u>	<u> </u>
Are %D values for all compounds within limits (less than 15%)?	<u>X</u>	<u> </u>	<u> </u>
<u>Analytical Sequence Check</u>			
Is a analytical sequence form present and complete for each column and each period of analyses?	<u>X</u>	<u> </u>	<u> </u>
Was the proper analytical sequence followed?	<u>X</u>	<u> </u>	<u> </u>

PCB Data Review Checklist - Page 3

	YES	NO	NA
<u>Cleanup Efficiency Verification</u>			
If GPC cleanup was performed, is Gel Permeation Chromatography Check Form present?	<u>X</u>	<u> </u>	<u> </u>
Are percent recoveries of the compounds used to check the efficiency of the cleanup procedure within QC limits?	<u>X</u>	<u> </u>	<u> </u>
<u>PCB Identification</u>			
Is both a combined and single column Aroclor Identification Report present for every sample?	<u>X</u>	<u> </u>	<u> </u>
Do the combined column and individual column Aroclor identifications agree?	<u>X</u>	<u> </u>	<u> </u>
Were there any false negatives?	<u> </u>	<u>X</u>	<u> </u>
Was GC/MS confirmation provided when required?	<u> </u>	<u> </u>	<u>X</u>
<u>Compound Quantitation and Reported Detection Limits</u>			
Are the reporting limits adjusted to reflect sample dilutions, and for soils, sample moisture?	<u>X</u>	<u> </u>	<u> </u>
<u>Chromatogram Quality</u>			
Were the baselines stable?	<u>X</u>	<u> </u>	<u> </u>
Were any electronegative displacement (negative peaks) or unusual peaks detected?	<u> </u>	<u>X</u>	<u> </u>
<u>Field Duplicates</u>			
Where field duplicates submitted with the samples?	<u>X</u>	<u> </u>	<u> </u>

PCB Holding Time and Surrogate Recovery Summary

Sample ID	Holding Time	Surrogates - Column 1		Surrogates - Column 2	
		TCX	DCB	TCX	DCB
K22520	OK for all samples				
K22521					
K22522					
K22523					
K22524					
K22525					
K22526					
K22527					
K22528					
K22529					
K22530					
K22531					
K22532					
K22533					
K22534					
K22535					
K22536					
K22537					
K22538					
K22541					
K22541-MS					
K22541-MSD		↓ (46)		↓ (53)	

Surrogates:

TCX Tetrachloro-m-xylene
DCB Decachlorobiphenyl

Qualifiers:

D Surrogates diluted out
↑ Recovery high
↓ Recovery low

Unless otherwise noted, all parameters are within specified limits.

PCB Calibration Summary

Instrument: HP2618
 Column: RTX-35 / RTX-5

Date:	11/19 18:47	11/21	11/21	11/21	11/21	11/21	11/21
Time:	to 11/20 14:43	07:12	07:47	14:51	15:26	22:30	23:05
	Initial Cal.	Cont. Cal.	Cont. Cal.	Cont. Cal.	Cont. Cal.	Cont. Cal.	Cont. Cal.
	%RSD	%D	%D	%D	%D	%D	%D
Aroclor 1016	3.6 / 3.4						1.0
Aroclor 1221	3.8 / 4.9						
Aroclor 1232	3.4 / 3.9						
Aroclor 1242	3.2 / 3.0						
Aroclor 1248	3.3 / 3.6	4.0		1.0		1.0	
Aroclor 1254	2.6 / 3.4		6.5				
Aroclor 1260	3.0 / 3.8				10.5		
Tetrachloro-m-xylene	2.9 / 3.6						
Decachlorobiphenyl	10.1 / 9.2						
Affected Samples:							

PCB Calibration Summary - Page 2

Instrument: HP2618
 Column: RTX-35 / RTX-5

Date:		11/22	11/22	11/22	11/22	11/22	11/22
Time:		06:08	06:43	09:04	09:39	21:58	22:33
	Initial Cal.	Cont. Cal.	Cont. Cal.	Cont. Cal.	Cont. Cal.	Cont. Cal.	Cont. Cal.
	%RSD	%D	%D	%D	%D	%D	%D
Aroclor 1016							
Aroclor 1221							
Aroclor 1232							
Aroclor 1242			6.5				
Aroclor 1248		5.5		6.5		10.5	
Aroclor 1254					2.0		
Aroclor 1260							15.0
Tetrachloro-m-xylene							
Decachlorobiphenyl							
Affected Samples:							

PCB Calibration Summary - Page 3

Instrument: HP2618
 Column: RTX-35 / RTX-5

Date:		11/23	11/23				
Time:		05:36	06:11				
	Initial Cal.	Cont. Cal.	Cont. Cal.	Cont. Cal.	Cont. Cal.	Cont. Cal.	Cont. Cal.
	%RSD	%D	%D	%D	%D	%D	%D
Aroclor 1016			6.5				
Aroclor 1221							
Aroclor 1232							
Aroclor 1242		8.0					
Aroclor 1248							
Aroclor 1254							
Aroclor 1260							
Tetrachloro-m-xylene							
Decachlorobiphenyl							
Affected Samples:							

CORRECTED ANALYSIS SUMMARY FORMS

FORM 1
AROCLOR ANALYSIS DATA SHEET

EPA SAMPLE NO.

K22520

Lab Name: Aquatec, Inc.

Lab Code: AQUAI

Contract: 91082

Case: PCB

SDG: 40088

Phase Type: SOIL

Lab Sample ID: 200823

Phase Weight: 10.0 (g)

Date Received: 10/14/93

Injection Volume: 1.0 (uL)

Date Extracted: 10/18/93

Dilution Factor: 1.0

Date Analyzed: 11/21/93

% Solids: 72.77

Sulfur Clean-up: N (Y/N)

CAS NO.	COMPOUND	CONCENTRATION (ug/Kg)	Q
12674-11-2	Aroclor-1016	69	U
11104-28-2	Aroclor-1221	69	U
11141-16-5	Aroclor-1232	69	U
53469-21-9	Aroclor-1242	69	U
12672-29-6	Aroclor-1248	69	U
11097-69-1	Aroclor-1254	69	U
11096-82-5	Aroclor-1260	69	U

FORM 1
AROCLOR ANALYSIS DATA SHEET

EPA SAMPLE NO.

K22521

Lab Name: Aquatec, Inc.

Lab Code: AQUAI

Contract: 91082

Case: PCB

SDG: 40088

Phase Type: SOIL

Lab Sample ID: 200824

Phase Weight: 10.0 (g)

Date Received: 10/14/93

Injection Volume: 1.0 (uL)

Date Extracted: 10/18/93

Dilution Factor: 1.0

Date Analyzed: 11/21/93

% Solids: 94.17

Sulfur Clean-up: N (Y/N)

CAS NO.	COMPOUND	CONCENTRATION (ug/Kg)	Q
12674-11-2	Aroclor-1016	54	U
11104-28-2	Aroclor-1221	54	U
11141-16-5	Aroclor-1232	54	U
53469-21-9	Aroclor-1242	54	U
12672-29-6	Aroclor-1248	30	J
11097-69-1	Aroclor-1254	54	U
11096-82-5	Aroclor-1260	54	U

FORM 1
AROCOR ANALYSIS DATA SHEET

EPA SAMPLE NO.

K22522

Lab Name: Aquatec, Inc.

Lab Code: AQUAI

Contract: 91082

Case: PCB

SDG: 40088

Phase Type: SOIL

Lab Sample ID: 200825

Phase Weight: 10.0 (g)

Date Received: 10/14/93

Injection Volume: 1.0 (uL)

Date Extracted: 10/18/93

Dilution Factor: 1.0

Date Analyzed: 11/21/93

% Solids: 75.59

Sulfur Clean-up: N (Y/N)

CAS NO.	COMPOUND	CONCENTRATION (ug/Kg)	Q
12674-11-2	Aroclor-1016	67	U
11104-28-2	Aroclor-1221	67	U
11141-16-5	Aroclor-1232	67	U
53469-21-9	Aroclor-1242	67	U
12672-29-6	Aroclor-1248	67	U
11097-69-1	Aroclor-1254	67	U
11096-82-5	Aroclor-1260	67	U

FORM 1
AROCOR ANALYSIS DATA SHEET

EPA SAMPLE NO.

K22523

Lab Name: Aquatec, Inc.

Lab Code: AQUAI

Contract: 91082

Case: PCB

SDG: 40088

Phase Type: SOIL

Lab Sample ID: 200826

Phase Weight: 10.0 (g)

Date Received: 10/14/93

Injection Volume: 1.0 (uL)

Date Extracted: 10/18/93

Dilution Factor: 1.0

Date Analyzed: 11/21/93

% Solids: 87.89

Sulfur Clean-up: N (Y/N)

CAS NO.	COMPOUND	CONCENTRATION (ug/Kg)	Q
12674-11-2	Aroclor-1016	57	U
11104-28-2	Aroclor-1221	57	U
11141-16-5	Aroclor-1232	57	U
53469-21-9	Aroclor-1242	27	J
12672-29-6	Aroclor-1248	57	U
11097-69-1	Aroclor-1254	57	U
11096-82-5	Aroclor-1260	57	U

FORM 1
AROCOR ANALYSIS DATA SHEET

EPA SAMPLE NO.

K22524

Lab Name: Aquatec, Inc.

Lab Code: AQUAI

Contract: 91082

Case: PCB

SDG: 40088

Phase Type: SOIL

Lab Sample ID: 200827

Phase Weight: 10.0 (g)

Date Received: 10/14/93

Injection Volume: 1.0 (uL)

Date Extracted: 10/18/93

Dilution Factor: 1.0

Date Analyzed: 11/21/93

% Solids: 73.44

Sulfur Clean-up: N (Y/N)

CAS NO.	COMPOUND	CONCENTRATION (ug/Kg)	Q
12674-11-2	Aroclor-1016	69	U
11104-28-2	Aroclor-1221	69	U
11141-16-5	Aroclor-1232	69	U
53469-21-9	Aroclor-1242	69	U
12672-29-6	Aroclor-1248	69	U
11097-69-1	Aroclor-1254	69	U
11096-82-5	Aroclor-1260	69	U

FORM 1
AROCOR ANALYSIS DATA SHEET

EPA SAMPLE NO.

K22525

Lab Name: Aquatec, Inc.

Lab Code: AQUAI

Contract: 91082

Case: PCB

SDG: 40088

Phase Type: SOIL

Lab Sample ID: 200828

Phase Weight: 10.0 (g)

Date Received: 10/14/93

Injection Volume: 1.0 (uL)

Date Extracted: 10/18/93

Dilution Factor: 1.0

Date Analyzed: 11/21/93

% Solids: 78.58

Sulfur Clean-up: N (Y/N)

CAS NO.	COMPOUND	CONCENTRATION (ug/Kg)	Q
12674-11-2	Aroclor-1016	64	U
11104-28-2	Aroclor-1221	64	U
11141-16-5	Aroclor-1232	64	U
53469-21-9	Aroclor-1242	64	U
12672-29-6	Aroclor-1248	64	U
11097-69-1	Aroclor-1254	64	U
11096-82-5	Aroclor-1260	64	U

FORM 1
AROCLOR ANALYSIS DATA SHEET

EPA SAMPLE NO.

K22526

Lab Name: Aquatec, Inc.

Lab Code: AQUAI

Contract: 91082

Case: PCB

SDG: 40088

Phase Type: SOIL

Lab Sample ID: 200829

Phase Weight: 10.0 (g)

Date Received: 10/14/93

Injection Volume: 1.0 (uL)

Date Extracted: 10/18/93

Dilution Factor: 1.0

Date Analyzed: 11/21/93

% Solids: 85.92

Sulfur Clean-up: N (Y/N)

CAS NO.	COMPOUND	CONCENTRATION (ug/Kg)	Q
12674-11-2	Aroclor-1016	59	U
11104-28-2	Aroclor-1221	59	U
11141-16-5	Aroclor-1232	59	U
53469-21-9	Aroclor-1242	59	U
12672-29-6	Aroclor-1248	27	J
11097-69-1	Aroclor-1254	59	U
11096-82-5	Aroclor-1260	59	U

FORM 1
AROCOR ANALYSIS DATA SHEET

EPA SAMPLE NO.

K22527

Lab Name: Aquatec, Inc.

Lab Code: AQUAI

Contract: 91082

Case: PCB

SDG: 40088

Phase Type: SOIL

Lab Sample ID: 200830

Phase Weight: 10.0 (g)

Date Received: 10/14/93

Injection Volume: 1.0 (uL)

Date Extracted: 10/18/93

Dilution Factor: 1.0

Date Analyzed: 11/21/93

% Solids: 89.65

Sulfur Clean-up: N (Y/N)

CAS NO.	COMPOUND	CONCENTRATION (ug/Kg)	Q
12674-11-2	Aroclor-1016	56	U
11104-28-2	Aroclor-1221	56	U
11141-16-5	Aroclor-1232	56	U
53469-21-9	Aroclor-1242	29	J
12672-29-6	Aroclor-1248	56	U
11097-69-1	Aroclor-1254	56	U
-	11096-82-5 Aroclor-1260	56	U

FORM 1
AROCOR ANALYSIS DATA SHEET

EPA SAMPLE NO.

K22528

Lab Name: Aquatec, Inc.

Lab Code: AQUAI

Contract: 91082

Case: PCB

SDG: 40088

Phase Type: SOIL

Lab Sample ID: 200831

Phase Weight: 10.0 (g)

Date Received: 10/14/93

Injection Volume: 1.0 (uL)

Date Extracted: 10/18/93

Dilution Factor: 1.0

Date Analyzed: 11/21/93

% Solids: 90.73

Sulfur Clean-up: N (Y/N)

CAS NO.	COMPOUND	CONCENTRATION (ug/Kg)	Q
12674-11-2	Aroclor-1016	56	U
11104-28-2	Aroclor-1221	56	U
11141-16-5	Aroclor-1232	56	U
53469-21-9	Aroclor-1242	56	U
12672-29-6	Aroclor-1248	25	J
11097-69-1	Aroclor-1254	56	U
11096-82-5	Aroclor-1260	56	U

FORM 1
AROCOR ANALYSIS DATA SHEET

EPA SAMPLE NO.

K22532

Lab Name: Aquatec, Inc.

Lab Code: AQUAI

Contract: 91082

Case: PCB

SDG: 40088

Phase Type: SOIL

Lab Sample ID: 200835

Phase Weight: 10.0 (g)

Date Received: 10/14/93

Injection Volume: 1.0 (uL)

Date Extracted: 10/18/93

Dilution Factor: 1.0

Date Analyzed: 11/22/93

% Solids: 89.92

Sulfur Clean-up: N (Y/N)

CAS NO.	COMPOUND	CONCENTRATION (ug/Kg)	Q
12674-11-2	Aroclor-1016	56	U
11104-28-2	Aroclor-1221	56	U
11141-16-5	Aroclor-1232	56	U
53469-21-9	Aroclor-1242	24	J
12672-29-6	Aroclor-1248	56	U
11097-69-1	Aroclor-1254	56	U
11096-82-5	Aroclor-1260	56	U

FORM 1
AROCOR ANALYSIS DATA SHEET

EPA SAMPLE NO.

K22529

Lab Name: Aquatec, Inc.

Lab Code: AQUAI

Contract: 91082

Case: PCB

SDG: 40088

Phase Type: SOIL

Lab Sample ID: 200832

Phase Weight: 10.0 (g)

Date Received: 10/14/93

Injection Volume: 1.0 (uL)

Date Extracted: 10/18/93

Dilution Factor: 1.0

Date Analyzed: 11/23/93

% Solids: 86.16

Sulfur Clean-up: Y (Y/N)

CAS NO.	COMPOUND	CONCENTRATION (ug/Kg)	Q
12674-11-2	Aroclor-1016	59	U
11104-28-2	Aroclor-1221	59	U
11141-16-5	Aroclor-1232	59	U
53469-21-9	Aroclor-1242	59	U
12672-29-6	Aroclor-1248	59	U
11097-69-1	Aroclor-1254	59	U
11096-82-5	Aroclor-1260	59	U

FORM 1
AROCOR ANALYSIS DATA SHEET

EPA SAMPLE NO.

K22530

Lab Name: Aquatec, Inc.

Lab Code: AQUAI

Contract: 91082

Case: PCB

SDG: 40088

Phase Type: SOIL

Lab Sample ID: 200833

Phase Weight: 10.0 (g)

Date Received: 10/14/93

Injection Volume: 1.0 (uL)

Date Extracted: 10/18/93

Dilution Factor: 1.0

Date Analyzed: 11/23/93

% Solids: 86.79

Sulfur Clean-up: Y (Y/N)

CAS NO.	COMPOUND	CONCENTRATION (ug/Kg)	Q
12674-11-2	Aroclor-1016	58	U
11104-28-2	Aroclor-1221	58	U
11141-16-5	Aroclor-1232	58	U
53469-21-9	Aroclor-1242	58	U
12672-29-6	Aroclor-1248	41	J
11097-69-1	Aroclor-1254	58	U
11096-82-5	Aroclor-1260	58	U

FORM 1
AROCOR ANALYSIS DATA SHEET

EPA SAMPLE NO.

K22531

Lab Name: Aquatec, Inc.

Lab Code: AQUAI

Contract: 91082

Case: PCB

SDG: 40088

Phase Type: SOIL

Lab Sample ID: 200834

Phase Weight: 10.0 (g)

Date Received: 10/14/93

Injection Volume: 1.0 (uL)

Date Extracted: 10/18/93

Dilution Factor: 1.0

Date Analyzed: 11/23/93

% Solids: 76.92

Sulfur Clean-up: Y (Y/N)

CAS NO.	COMPOUND	CONCENTRATION (ug/Kg)	Q
12674-11-2	Aroclor-1016	66	U
11104-28-2	Aroclor-1221	66	U
11141-16-5	Aroclor-1232	66	U
53469-21-9	Aroclor-1242	66	U
12672-29-6	Aroclor-1248	350	
11097-69-1	Aroclor-1254	100	
11096-82-5	Aroclor-1260	26	J

FORM 1
AROCOR ANALYSIS DATA SHEET

EPA SAMPLE NO.

K22533

Lab Name: Aquatec, Inc.

Lab Code: AQUAI

Contract: 91082

Case: PCB

SDG: 40088

Phase Type: Water

Lab Sample ID: 200836

Phase Volume: 1000 (mL)

Date Received: 10/14/93

Injection Volume: 1.0 (uL)

Date Extracted: 10/19/93

Dilution Factor: 1.0

Date Analyzed: 11/21/93

Sulfur Clean-up: N (Y/N)

CAS NO.	COMPOUND	CONCENTRATION (ug/L)	Q
12674-11-2	Aroclor-1016	0.050	U
11104-28-2	Aroclor-1221	0.050	U
11141-16-5	Aroclor-1232	0.050	U
53469-21-9	Aroclor-1242	0.050	U
12672-29-6	Aroclor-1248	0.050	U
11097-69-1	Aroclor-1254	0.050	U
11096-82-5	Aroclor-1260	0.050	U

FORM 1
AROCLOR ANALYSIS DATA SHEET

EPA SAMPLE NO.

K22534

Lab Name: Aquatec, Inc.

Lab Code: AQUAI

Contract: 91082

Case: PCB

SDG: 40088

Phase Type: Water

Lab Sample ID: 200837

Phase Volume: 1002 (mL)

Date Received: 10/14/93

Injection Volume: 1.0 (uL)

Date Extracted: 10/19/93

Dilution Factor: 1.0

Date Analyzed: 11/21/93

Sulfur Clean-up: N (Y/N)

CAS NO.	COMPOUND	CONCENTRATION (ug/L)	Q
12674-11-2	Aroclor-1016	0.050	U
11104-28-2	Aroclor-1221	0.050	U
11141-16-5	Aroclor-1232	0.050	U
53469-21-9	Aroclor-1242	0.050	U
12672-29-6	Aroclor-1248	0.050	U
11097-69-1	Aroclor-1254	0.050	U
11096-82-5	Aroclor-1260	0.050	U

FORM 1
AROCLOR ANALYSIS DATA SHEET

EPA SAMPLE NO.

K22535

Lab Name: Aquatec, Inc.

Lab Code: AQUAI

Contract: 91082

Case: PCB

SDG: 40088

Phase Type: SOIL

Lab Sample ID: 201190

Phase Weight: 10.1 (g)

Date Received: 10/16/93

Injection Volume: 1.0 (uL)

Date Extracted: 10/21/93

Dilution Factor: 1.0

Date Analyzed: 11/22/93

% Solids: 90.60

Sulfur Clean-up: N (Y/N)

CAS NO.	COMPOUND	CONCENTRATION (ug/Kg)	Q
12674-11-2	Aroclor-1016	55	U
11104-28-2	Aroclor-1221	55	U
11141-16-5	Aroclor-1232	55	U
53469-21-9	Aroclor-1242	55	U
12672-29-6	Aroclor-1248	55	U
11097-69-1	Aroclor-1254	55	U
11096-82-5	Aroclor-1260	55	U

FORM 1
AROCOR ANALYSIS DATA SHEET

EPA SAMPLE NO.

K22536

Lab Name: Aquatec, Inc.

Lab Code: AQUAI

Contract: 91082

Case: PCB

SDG: 40088

Phase Type: SOIL

Lab Sample ID: 201191

Phase Weight: 10.0 (g)

Date Received: 10/16/93

Injection Volume: 1.0 (uL)

Date Extracted: 10/21/93

Dilution Factor: 1.0

Date Analyzed: 11/22/93

% Solids: 29.51

Sulfur Clean-up: N (Y/N)

CAS NO.	COMPOUND	CONCENTRATION (ug/Kg)	Q
12674-11-2	Aroclor-1016	170	U
11104-28-2	Aroclor-1221	170	U
11141-16-5	Aroclor-1232	170	U
53469-21-9	Aroclor-1242	170	U
12672-29-6	Aroclor-1248	170	U
11097-69-1	Aroclor-1254	170	U
11096-82-5	Aroclor-1260	170	U

FORM 1
AROCLOL ANALYSIS DATA SHEET

EPA SAMPLE NO.

K22537

Lab Name: Aquatec, Inc.

Lab Code: AQUAI

Contract: 91082

Case: PCB

SDG: 40088

Phase Type: SOIL

Lab Sample ID: 201192

Phase Weight: 10.0 (g)

Date Received: 10/16/93

Injection Volume: 1.0 (uL)

Date Extracted: 10/21/93

Dilution Factor: 1.0

Date Analyzed: 11/22/93

% Solids: 91.84

Sulfur Clean-up: N (Y/N)

CAS NO.	COMPOUND	CONCENTRATION (ug/Kg)	Q
12674-11-2	Aroclor-1016	55	U
11104-28-2	Aroclor-1221	55	U
11141-16-5	Aroclor-1232	55	U
53469-21-9	Aroclor-1242	55	U
12672-29-6	Aroclor-1248	55	U
11097-69-1	Aroclor-1254	55	U
11096-82-5	Aroclor-1260	55	U

FORM 1
AROCLOR ANALYSIS DATA SHEET

EPA SAMPLE NO.

K22538

Lab Name: Aquatec, Inc.

Lab Code: AQUAI

Contract: 91082

Case: PCB

SDG: 40088

Phase Type: SOIL

Lab Sample ID: 201193

Phase Weight: 10.1 (g)

Date Received: 10/16/93

Injection Volume: 1.0 (uL)

Date Extracted: 10/21/93

Dilution Factor: 1.0

Date Analyzed: 11/22/93

% Solids: 90.89

Sulfur Clean-up: N (Y/N)

CAS NO.	COMPOUND	CONCENTRATION (ug/Kg)	Q
12674-11-2	Aroclor-1016	55	U
11104-28-2	Aroclor-1221	55	U
11141-16-5	Aroclor-1232	55	U
53469-21-9	Aroclor-1242	55	U
12672-29-6	Aroclor-1248	55	U
11097-69-1	Aroclor-1254	55	U
- 11096-82-5	Aroclor-1260	55	U

FORM 1
AROCOR ANALYSIS DATA SHEET

EPA SAMPLE NO.

K22541

Lab Name: Aquatec, Inc.

Lab Code: AQUAI

Contract: 91082

Case: PCB

SDG: 40088

Phase Type: SOIL

Lab Sample ID: 201194

Phase Weight: 9.9 (g)

Date Received: 10/16/93

Injection Volume: 1.0 (uL)

Date Extracted: 10/21/93

Dilution Factor: 1.0

Date Analyzed: 11/22/93

% Solids: 71.81

Sulfur Clean-up: Y (Y/N)

CAS NO.	COMPOUND	CONCENTRATION (ug/Kg)	Q
12674-11-2	Aroclor-1016	71	U
11104-28-2	Aroclor-1221	71	U
11141-16-5	Aroclor-1232	71	U
53469-21-9	Aroclor-1242	71	U
12672-29-6	Aroclor-1248	71	U
11097-69-1	Aroclor-1254	71	U
11096-82-5	Aroclor-1260	71	U

**DATA REVIEW FOR
ALLIED PAPER, INC./PORTAGE CREEK/KALAMAZOO RIVER
SUPERFUND SITE**

**SDG# 40090
PCB ANALYSES**

GEOSTATISTICAL PILOT STUDY

Analyses performed by:

**Aquatec, Inc.
Colchester, Vermont**

Review performed by:

**Blasland & Bouck Engineers, P.C.
Syracuse, New York**

Summary

The following is an assessment of the PCB data package for SDG # 40090 for the Geostatistical Pilot Study sampling of river sediments from the Allied Paper, Inc./Portage Creek/Kalamazoo River Superfund Site. Included with this assessment are the data review check sheets used in the review of the package and corrected sample results. Analyses were performed on the following samples:

Sample ID	Lab ID	Matrix	Sample Date
K22500	200838	sediment	10/12/93
K22501	200839	sediment	10/12/93
K22502	200840	sediment	10/12/93
K22503	200841	sediment	10/12/93
K22504	200842	sediment	10/12/93
K22505	200843	sediment	10/12/93
K22506	200844	sediment	10/12/93
K22507	200845	sediment	10/12/93
K22508	200846	sediment	10/12/93
K22509	200847	sediment	10/12/93
K22510	200848	sediment	10/12/93
K22511	200849	sediment	10/12/93
K22512	200850	sediment	10/12/93
K22513	200851	sediment	10/12/93
K22514	200852	sediment	10/12/93
K22515	200853	sediment	10/12/93
K22516	200854	sediment	10/12/93
K22517	200855	sediment	10/12/93
K22518	200856	sediment	10/12/93
K22519*	200857	sediment	10/12/93

* MS/MSD performed on this sample

Introduction

Analyses were performed according to the USEPA SW-846 method 8081, modified for PCB only analysis.

The data review process is intended to evaluate the data on a technical basis. It is assumed that the data package represents the best efforts of the laboratory and had already been subjected to adequate and sufficient quality review prior to submission.

During the review process, laboratory qualified and unqualified data are verified against the supporting documentation. Based on this evaluation, qualifier codes may be added, deleted, or modified by the data reviewer. Results are qualified with the following codes in accordance with National Functional Guidelines:

- U The compound was analyzed for but not detected. The associated value is the compound quantitation limit.
- J The compound was positively identified; however, the associated numerical value is an estimated concentration only.
- B The compound has been found in the sample as well as its associated blank, its presence in the sample may be suspect.
- N The analysis indicates the presence of a compound for which there is presumptive evidence to make a tentative identification.
- JN The analysis indicates the presence of a compound for which there is presumptive evidence to make a tentative identification. The associated numerical value is an estimated concentration only.
- E The compound was quantitated above the calibration range.
- D Concentration is based on a diluted sample analysis.
- UJ The compound was not detected above the reported sample quantitation limit. However, the reported limit is approximate and may or may not represent the actual limit of quantitation.
- R The sample results are rejected.

Two facts should be noted by all data users. First, the "R" flag means that the associated value is unusable. In other words, due to significant QC problems, the analysis is invalid and provides no information as to whether the compound is present or not. "R" values should not appear on data tables because they cannot be relied upon, even as a last resort. The second fact to keep in mind is that no compound concentration, even if it has passed all QC test, is guaranteed to be accurate. Strict QC serves to increase confidence in data but any value potentially contains error.

The data presented in the package has been derived using a procedure developed by Aquatec, Inc. in an attempt to improve the analytical process of calibration, identification, and quantitation of PCBs as Aroclors. Key components of this procedure include:

Calibration

The response function of the electron capture detector is inherently non-linear, and while significant linearization is achieved for this detector by electronic means, some non-linearity remains. Power function linearization is used to "straighten the curve" and allow the use of response factors for calibration purposes.

During the initial calibration a response factor is calculated for each peak in the individual Aroclors.

A weighted response factor calculation has been used to adjust for non-linearity at the low end of the calibration curve.

Identification

Peak retention times are relative. Retention times are in set windows relative to the time markers DCB and TCMX. Time markers adjust for minor variations in column flow or instrument condition and allow the use of very tight windows which minimizes the number of both false positive and false negative peak identifications.

The determination of "which Aroclor or mixture of Aroclors will produce a chromatogram most similar to that of the residue" is made by expressing the unknown sample chromatogram as a linear combination of the Aroclors. The "most similar" Aroclor or mixture of Aroclors is determined by using a least squares minimization of the difference between the unknown chromatogram and the linear combination of Aroclors. This is similar to the procedure presented by L.E. Slivon, P.M. Schumacher and A. Alford-Stevens for the determination of Aroclor composition from GC/MS level of chlorination results.

Identification/quantitation of Aroclors in samples is based on the combined response of two columns, typically RTX-5 and RTX-35. The pooling of response combines the unique qualities of both columns to derive a more defined Aroclor pattern which less likely to be affected by interferences. Identification/quantitation data for the individual columns is provided in the package and can be used as a check on the combined column results.

Data Assessment

1. Holding Time

The specified holding times for PCB analyses on soil samples is 10 days from date of sample receipt to extraction and 40 days from extraction to analysis. All samples were originally extracted and analyzed within these holding times. Due to potential laboratory contamination, samples K22504, K22505, K22512, K22513, and K22514 were re-extracted 29 days over holding time. All data for the re-extractions have been qualified as estimated.

2. Blank Contamination

Quality assurance blanks, i.e., method, field or rinse blanks, are prepared to identify any contamination which may have been introduced in to the samples during sample preparation or field activity. Method blanks measure laboratory contamination. Field and rinse blanks measure contamination of samples during field operations.

No target compounds were detected in the rinse blanks or instrument blanks. Traces of Aroclor 1268 were detected in the method blank. Due to the possible identification of Aroclor 1268 as 1260, all samples which contained PCBs identified as Aroclor 1260 were re-extracted and reanalyzed.

3. System Performance

The system performance was acceptable for both columns.

4. Calibration

Satisfactory instrument calibration is established to insure that the instrument is capable of producing acceptable quantitative data. An initial calibration demonstrates that the instrument is capable of giving acceptable performance at the beginning of an experimental sequence. The continuing calibration verifies that the instrument is giving satisfactory daily performance.

4.1 Initial Calibration

The method allows a maximum RSD of 20%. The %RSD was within acceptable limits for all Aroclors.

4.2 Continuing Calibration

A maximum %D of 15 is allowed. All continuing calibrations were within the specified limits.

5. Surrogates / System Monitoring Compounds

All samples to be analyzed for organic compounds are spiked with surrogate compounds prior to sample preparation to evaluate overall laboratory performance and efficiency of the analytical technique.

Recoveries were low for one surrogate in samples K22500, K22501, K22502, K22503, K22507, K22514, K22518, K22519MS, and K22519MSD. No qualifiers have been added to the samples based on the recoveries. All other surrogate recoveries were within acceptable limits.

6. Compound Identification

The determination of Aroclor presence is made by expressing the unknown sample chromatogram as a linear combination of the Aroclors. The most similar Aroclor or mixture of Aroclors is determined by using a least squares minimization of the difference between the unknown chromatogram and the linear combination of Aroclors.

Identification/quantitation of Aroclors is based on the combined response of the RTX-5 and RTX-35 columns. Identification/quantitation data for the individual columns is provided in the package and has been used as a check on the combined column results.

A review of the sample chromatograms indicate that the Aroclors have been correctly identified/quantitated for all samples.

The quantitated concentration between the combined and both individual columns were within acceptable limits for all samples.

7. Matrix Spike/Matrix Spike Duplicate

Matrix spike and matrix spike duplicate data are used to assess the precision and accuracy of the analytical method.

All matrix spike recoveries and relative percent differences between recoveries were within acceptable limits.

8. Field Duplicates

Results for duplicate samples are summarized below:

Sample	Result	Duplicate Sample	Result	RPD*
K22507	ND	K22508	ND	--
K22517	1242 - 270	K22518	1248 - 37J	143%
	1248 - 58J		1254 - 27J	
	1254 - 58J			

* RPD calculation based on total PCB content

Samples K22507/K22508 replicate through non-detection. The RPD result for samples K22517/K22518, however, is outside USEPA Region 5 guidance limits.

9. General Comments

The recommended data usage for the sample re-extractions is as follows:

K22504 and K22504-RE:

The original sample K22504 contained Aroclor 1268 which was quantitated as Aroclor 1260. Re-extraction and analysis of the sample indicated that the Aroclor 1268 presence in the original extract was caused by laboratory contamination. The re-extracted sample K22504-RE is more indicative of sample Aroclor content and is recommended for use.

K22505 and K22505-RE:

The original sample K22505 contained Aroclor 1268 which was quantitated as Aroclor 1260. Re-extraction and analysis of the sample indicated that the Aroclor 1268 presence in the original extract was caused by laboratory contamination. The re-extracted sample K22505-RE is more indicative of sample Aroclor content and is recommended for use.

K22512 and K22512-RE:

The original sample K22512 contained Aroclor 1268 which was quantitated as Aroclor 1260. Re-extraction and analysis of the sample indicated that the Aroclor 1268 presence in the original extract was caused by laboratory contamination. The re-extracted sample K22512-RE is more indicative of sample Aroclor content and is recommended for use.

K22513 and K22513-RE:

The original sample K22513 contained Aroclor 1260 which was potentially attributable to laboratory contamination. The re-extracted sample K22513-RE was also found to contain Aroclor 1260 indicating that its presence in the sample was site-related. Since the re-extracted sample was extracted 29 days over holding time, the original sample K22513 is recommended for use.

K22514 and K22514-RE:

The original sample K22514 contained Aroclor 1268 which was quantitated as Aroclor 1260. Re-extraction and analysis of the sample indicated that the Aroclor 1268 presence in the original extract was caused by laboratory contamination. The re-extracted sample K22514-RE is more indicative of sample Aroclor content and is recommended for use.

10. System Performance and Overall Assessment

Overall system performance was acceptable. Other than those deviations specifically mentioned in this review, the overall data quality is within the guidelines listed in the analytical method.

DATA REVIEW CHECKLIST

PCB Data Review Checklist

	YES	NO	NA
<u>Data Completeness and Deliverables</u>			
Is there a narrative or cover letter present?	<u>X</u>	<u> </u>	<u> </u>
Are the samples numbers included in the narrative?	<u>X</u>	<u> </u>	<u> </u>
Are the sample chain-of-custodies present?	<u>X</u>	<u> </u>	<u> </u>
Do the chain-of-custodies indicate any problems with sample receipt or sample condition?	<u> </u>	<u>X</u>	<u> </u>
<u>Holding Times</u>			
Have any holding times been exceeded?	<u>X</u>	<u> </u>	<u> </u>
<u>Surrogate Recovery</u>			
Are surrogate recovery forms present?	<u>X</u>	<u> </u>	<u> </u>
Are all the samples listed on the appropriate surrogate recovery form?	<u>X</u>	<u> </u>	<u> </u>
Are the outliers correctly marked with an asterisk?	<u>X</u>	<u> </u>	<u> </u>
Were recoveries of TCMX or DCB outside of specified limits for any sample or blank?	<u>X</u>	<u> </u>	<u> </u>
If yes, were the samples reanalyzed?	<u> </u>	<u>X</u>	<u> </u>
<u>Matrix Spikes</u>			
Is there a matrix spike recovery form present?	<u>X</u>	<u> </u>	<u> </u>
Were matrix spikes analyzed at the required frequency?	<u>X</u>	<u> </u>	<u> </u>
How many spike recoveries were outside of QC limits?			
<u> 0 </u> out of <u> 4 </u>			
How many RPDs for matrix spike and matrix spike duplicate were outside of QC limits?			
<u> 0 </u> out of <u> 2 </u>			
<u>Blanks</u>			
Is a Method Blank Summary Form present?	<u>X</u>	<u> </u>	<u> </u>
Has a method blank been analyzed for each set of samples or for each 20 samples, whichever is more frequent?	<u>X</u>	<u> </u>	<u> </u>
Has an instrument blank been analyzed at the beginning of each 12 hour period following the initial calibration?	<u>X</u>	<u> </u>	<u> </u>

PCB Data Review Checklist - Page 2

	YES	NO	NA
Is the chromatographic performance acceptable for each instrument?	<u>X</u>	<u> </u>	<u> </u>
Do any method/reagent/instrument blanks have positive results?	<u> </u>	<u>X</u>	<u> </u>
Do any field/rinse blanks have positive results?	<u> </u>	<u>X</u>	<u> </u>
Are there field/rinse/equipment blanks associated with every sample?	<u>X</u>	<u> </u>	<u> </u>
<u>Calibration and GC Performance</u>			
Are the following chromatograms and data printouts present?			
Aroclor 1016/1260	<u>X</u>	<u> </u>	<u> </u>
Aroclor 1221	<u>X</u>	<u> </u>	<u> </u>
Aroclor 1232	<u>X</u>	<u> </u>	<u> </u>
Aroclor 1242	<u>X</u>	<u> </u>	<u> </u>
Aroclor 1248	<u>X</u>	<u> </u>	<u> </u>
Aroclor 1254	<u>X</u>	<u> </u>	<u> </u>
Instrument Blanks	<u>X</u>	<u> </u>	<u> </u>
Are Initial Calibration Summary Forms present and complete for each column and analytical sequence?	<u>X</u>	<u> </u>	<u> </u>
Are the linearity criteria for the initial analyses within limits for both columns (20% RSD)	<u>X</u>	<u> </u>	<u> </u>
Have all samples been injected within a 12 hour period beginning with the injection of an instrument blank?	<u>X</u>	<u> </u>	<u> </u>
Is a Calibration Verification Summary Form present and complete for each continuing standard analyzed?	<u>X</u>	<u> </u>	<u> </u>
Are %D values for all compounds within limits (less than 15%)?	<u>X</u>	<u> </u>	<u> </u>
<u>Analytical Sequence Check</u>			
Is a analytical sequence form present and complete for each column and each period of analyses?	<u>X</u>	<u> </u>	<u> </u>
Was the proper analytical sequence followed?	<u>X</u>	<u> </u>	<u> </u>

PCB Data Review Checklist - Page 3

	YES	NO	NA
<u>Cleanup Efficiency Verification</u>			
If GPC cleanup was performed, is Gel Permeation Chromatography Check Form present?	<u>X</u>	<u> </u>	<u> </u>
Are percent recoveries of the compounds used to check the efficiency of the cleanup procedure within QC limits?	<u>X</u>	<u> </u>	<u> </u>
<u>PCB Identification</u>			
Is both a combined and single column Aroclor Identification Report present for every sample?	<u>X</u>	<u> </u>	<u> </u>
Do the combined column and individual column Aroclor identifications agree?	<u>X</u>	<u> </u>	<u> </u>
Were there any false negatives?	<u> </u>	<u>X</u>	<u> </u>
Was GC/MS confirmation provided when required?	<u> </u>	<u> </u>	<u>X</u>
<u>Compound Quantitation and Reported Detection Limits</u>			
Are the reporting limits adjusted to reflect sample dilutions, and for soils, sample moisture?	<u>X</u>	<u> </u>	<u> </u>
<u>Chromatogram Quality</u>			
Were the baselines stable?	<u>X</u>	<u> </u>	<u> </u>
Were any electronegative displacement (negative peaks) or unusual peaks detected?	<u> </u>	<u>X</u>	<u> </u>
<u>Field Duplicates</u>			
Where field duplicates submitted with the samples?	<u>X</u>	<u> </u>	<u> </u>

**PCB Holding Time and Surrogate
Recovery Summary**

Sample ID	Holding Time	Surrogates - Column 1		Surrogates - Column 2	
		TCX	DCB	TCX	DCB
K22500		↓ (52)		↓ (52)	
K22501		↓ (57)		↓ (57)	
K22502		↓ (55)		↓ (55)	
K22503				↓ (58)	
K22504					
K22504-RE	+ 29				
K22505					
K22505-RE	+ 29				
K22506					
K22507		↓ (59)		↓ (59)	
K22508					
K22509					
K22510					
K22511					
K22512					
K22512-RE	+ 29				
K22513					
K22513-RE	+ 29				
K22514		↓ (56)		↓ (56)	
K22514-RE	+ 29				
K22515					
K22516					
K22517					
K22518		↓ (59)			
K22519					
K22519-MS		↓ (55)		↓ (59)	
K22519-MSD		↓ (50)		↓ (54)	

Surrogates:

TCX Tetrachloro-m-xylene

DCB Decachlorobiphenyl

Qualifiers:

D Surrogates diluted out

↑ Recovery high

↓ Recovery low

Unless otherwise noted, all parameters are within specified limits.

PCB Calibration Summary

Instrument: HP2618
 Column: RTX-35 / RTX-5

Date:	11/19 18:47	11/20	11/20	11/20	11/21	11/21	11/21
Time:	to 11/20 14:43	15:54	16:29	23:33	00:08	07:12	07:47
	Initial Cal.	Cont. Cal.	Cont. Cal.	Cont. Cal.	Cont. Cal.	Cont. Cal.	Cont. Cal.
	%RSD	%D	%D	%D	%D	%D	%D
Aroclor 1016	3.6 / 3.4		1.4				
Aroclor 1221	3.8 / 4.9						
Aroclor 1232	3.4 / 3.9						
Aroclor 1242	3.2 / 3.0				5.0		
Aroclor 1248	3.3 / 3.6	4.0		5.5		4.0	
Aroclor 1254	2.6 / 3.4						6.5
Aroclor 1260	3.0 / 3.8						
Tetrachloro-m-xylene	2.9 / 3.6						
Decachlorobiphenyl	10.1 / 9.2						
Affected Samples:							

PCB Calibration Summary - Page 2

Instrument: HP2618
 Column: RTX-35 / RTX-5

Date:		11/21	11/21	11/22	11/22	11/23	11/23
Time:		14:51	15:26	21:58	22:33	05:36	06:11
	Initial Cal.	Cont. Cal.	Cont. Cal.	Cont. Cal.	Cont. Cal.	Cont. Cal.	Cont. Cal.
	%RSD	%D	%D	%D	%D	%D	%D
Aroclor 1016							6.5
Aroclor 1221							
Aroclor 1232							
Aroclor 1242							
Aroclor 1248		1.0		10.5		8.0	
Aroclor 1254							
Aroclor 1260			10.5		15.0		
Tetrachloro-m-xylene							
Decachlorobiphenyl							
Affected Samples:							

PCB Calibration Summary - Page 3

Instrument: HP2618
 Column: RTX-35 / RTX-5

Date:	12/09 22:18	12/11	12/11	12/11	12/11		
Time:	to 12/10 18:16	00:16	00:52	07:55	08:30		
	Initial Cal.	Cont. Cal.	Cont. Cal.	Cont. Cal.	Cont. Cal.	Cont. Cal.	Cont. Cal.
	%RSD	%D	%D	%D	%D	%D	%D
Aroclor 1016	3.9 / 4.4		8.5				
Aroclor 1221	4.4 / 4.7						
Aroclor 1232	3.0 / 3.3						
Aroclor 1242	3.7 / 4.6				8.5		
Aroclor 1248	3.0 / 3.1	4.0		2.0			
Aroclor 1254	2.4 / 2.8						
Aroclor 1260	3.0 / 2.8						
Tetrachloro-m-xylene	4.9 / 5.2						
Decachlorobiphenyl	9.3 / 9.9						
Affected Samples:							

CORRECTED ANALYSIS SUMMARY FORMS

FORM 1
AROCLOR ANALYSIS DATA SHEET

EPA SAMPLE NO.

K22500

Lab Name: Aquatec, Inc.

Lab Code: AQUAI

Contract: 91082

Case: PCB

SDG: 40090

Phase Type: SOIL

Lab Sample ID: 200838

Phase Weight: 10.1 (g)

Date Received: 10/14/93

Injection Volume: 1.0 (uL)

Date Extracted: 10/19/93

Dilution Factor: 1.0

Date Analyzed: 11/20/93

% Solids: 88.32

Sulfur Clean-up: N (Y/N)

CAS NO.	COMPOUND	CONCENTRATION (ug/Kg)	Q
12674-11-2	Aroclor-1016	57	U
11104-28-2	Aroclor-1221	57	U
11141-16-5	Aroclor-1232	57	U
53469-21-9	Aroclor-1242	57	U
12672-29-6	Aroclor-1248	67	
11097-69-1	Aroclor-1254	57	U
11096-82-5	Aroclor-1260	57	U

FORM 1
AROCOR ANALYSIS DATA SHEET

EPA SAMPLE NO.

K22501

Lab Name: Aquatec, Inc.

Lab Code: AQUAI

Contract: 91082

Case: PCB

SDG: 40090

Phase Type: SOIL

Lab Sample ID: 200839

Phase Weight: 10.1 (g)

Date Received: 10/14/93

Injection Volume: 1.0 (uL)

Date Extracted: 10/19/93

Dilution Factor: 1.0

Date Analyzed: 11/20/93

% Solids: 88.61

Sulfur Clean-up: N (Y/N)

CAS NO.	COMPOUND	CONCENTRATION (ug/Kg)	Q
12674-11-2	Aroclor-1016	56	U
11104-28-2	Aroclor-1221	56	U
11141-16-5	Aroclor-1232	56	U
53469-21-9	Aroclor-1242	56	U
12672-29-6	Aroclor-1248	56	U
11097-69-1	Aroclor-1254	56	U
11096-82-5	Aroclor-1260	56	U

FORM 1
AROCOR ANALYSIS DATA SHEET

EPA SAMPLE NO.

K22502

Lab Name: Aquatec, Inc.

Lab Code: AQUAI

Contract: 91082

Case: PCB

SDG: 40090

Phase Type: SOIL

Lab Sample ID: 200840

Phase Weight: 9.9 (g)

Date Received: 10/14/93

Injection Volume: 1.0 (uL)

Date Extracted: 10/19/93

Dilution Factor: 1.0

Date Analyzed: 11/20/93

% Solids: 80.96

Sulfur Clean-up: N (Y/N)

CAS NO.	COMPOUND	CONCENTRATION (ug/Kg)	Q
12674-11-2	Aroclor-1016	63	U
11104-28-2	Aroclor-1221	63	U
11141-16-5	Aroclor-1232	63	U
53469-21-9	Aroclor-1242	63	U
12672-29-6	Aroclor-1248	49	J
11097-69-1	Aroclor-1254	63	U
11096-82-5	Aroclor-1260	63	U

FORM 1
AROCOR ANALYSIS DATA SHEET

EPA SAMPLE NO.

K22503

Lab Name: Aquatec, Inc.

Lab Code: AQUAI

Contract: 91082

Case: PCB

SDG: 40090

Phase Type: SOIL

Lab Sample ID: 200841

Phase Weight: 10.1 (g)

Date Received: 10/14/93

Injection Volume: 1.0 (uL)

Date Extracted: 10/19/93

Dilution Factor: 1.0

Date Analyzed: 11/20/93

% Solids: 86.36

Sulfur Clean-up: N (Y/N)

CAS NO.	COMPOUND	CONCENTRATION (ug/Kg)	Q
12674-11-2	Aroclor-1016	58	U
11104-28-2	Aroclor-1221	58	U
11141-16-5	Aroclor-1232	58	U
53469-21-9	Aroclor-1242	160	
12672-29-6	Aroclor-1248	250	
11097-69-1	Aroclor-1254	29	J
11096-82-5	Aroclor-1260	58	U

FORM 1
AROCOR ANALYSIS DATA SHEET

EPA SAMPLE NO.

K22504RE

Lab Name: Aquatec, Inc.

Lab Code: AQUAI

Contract: 91082

Case: PCB

SDG: 40090

Phase Type: SOIL

Lab Sample ID: 200842R1

Phase Weight: 10.0 (g)

Date Received: 10/14/93

Injection Volume: 1.0 (uL)

Date Extracted: 11/22/93

Dilution Factor: 1.0

Date Analyzed: 12/11/93

% Solids: 72.26

Sulfur Clean-up: N (Y/N)

CAS NO.	COMPOUND	CONCENTRATION (ug/Kg)	Q
12674-11-2	Aroclor-1016	70	U 5
11104-28-2	Aroclor-1221	70	U 17
11141-16-5	Aroclor-1232	70	U 17
53469-21-9	Aroclor-1242	70	U 17
12672-29-6	Aroclor-1248	70	U 17
11097-69-1	Aroclor-1254	70	U 17
11096-82-5	Aroclor-1260	70	U 17

FORM 1
AROCOR ANALYSIS DATA SHEET

EPA SAMPLE NO.

K22505RE

Lab Name: Aquatec, Inc.

Lab Code: AQUAI

Contract: 91082

Case: PCB

SDG: 40090

Phase Type: SOIL

Lab Sample ID: 200843R1

Phase Weight: 10.1 (g)

Date Received: 10/14/93

Injection Volume: 1.0 (uL)

Date Extracted: 11/22/93

Dilution Factor: 1.0

Date Analyzed: 12/11/93

% Solids: 82.58

Sulfur Clean-up: N (Y/N)

CAS NO.	COMPOUND	CONCENTRATION (ug/Kg)	Q
12674-11-2	Aroclor-1016	60	U J
11104-28-2	Aroclor-1221	60	U J
11141-16-5	Aroclor-1232	60	U J
53469-21-9	Aroclor-1242	60	U J
12672-29-6	Aroclor-1248	140	U J
11097-69-1	Aroclor-1254	120	U J
11096-82-5	Aroclor-1260	60	U J

FORM 1
AROCOR ANALYSIS DATA SHEET

EPA SAMPLE NO.

K22506

Lab Name: Aquatec, Inc.

Lab Code: AQUAI

Contract: 91082

Case: PCB

SDG: 40090

Phase Type: SOIL

Lab Sample ID: 200844

Phase Weight: 10.0 (g)

Date Received: 10/14/93

Injection Volume: 1.0 (uL)

Date Extracted: 10/19/93

Dilution Factor: 1.0

Date Analyzed: 11/20/93

% Solids: 91.24

Sulfur Clean-up: N (Y/N)

CAS NO.	COMPOUND	CONCENTRATION (ug/Kg)	Q
12674-11-2	Aroclor-1016	55	U
11104-28-2	Aroclor-1221	55	U
11141-16-5	Aroclor-1232	55	U
53469-21-9	Aroclor-1242	55	U
12672-29-6	Aroclor-1248	55	U
11097-69-1	Aroclor-1254	55	U
11096-82-5	Aroclor-1260	55	U

FORM 1
AROCOR ANALYSIS DATA SHEET

EPA SAMPLE NO.

K22507

Lab Name: Aquatec, Inc.

Lab Code: AQUAI

Contract: 91082

Case: PCB

SDG: 40090

Phase Type: SOIL

Lab Sample ID: 200845

Phase Weight: 9.9 (g)

Date Received: 10/14/93

Injection Volume: 1.0 (uL)

Date Extracted: 10/19/93

Dilution Factor: 1.0

Date Analyzed: 11/20/93

% Solids: 72.75

Sulfur Clean-up: N (Y/N)

CAS NO.	COMPOUND	CONCENTRATION (ug/Kg)	Q
12674-11-2	Aroclor-1016	87	U
11104-28-2	Aroclor-1221	87	U
11141-16-5	Aroclor-1232	87	U
53469-21-9	Aroclor-1242	87	U
12672-29-6	Aroclor-1248	87	U
11097-69-1	Aroclor-1254	87	U
11096-82-5	Aroclor-1260	87	U

FORM 1
AROCLOR ANALYSIS DATA SHEET

EPA SAMPLE NO.

K22508

Lab Name: Aquatec, Inc.

Lab Code: AQUAI

Contract: 91082

Case: PCB

SDG: 40090

Phase Type: SOIL

Lab Sample ID: 200846

Phase Weight: 10.1 (g)

Date Received: 10/14/93

Injection Volume: 1.0 (uL)

Date Extracted: 10/19/93

Dilution Factor: 1.0

Date Analyzed: 11/20/93

% Solids: 72.26

Sulfur Clean-up: N (Y/N)

CAS NO.	COMPOUND	CONCENTRATION (ug/Kg)	Q
12674-11-2	Aroclor-1016	69	U
11104-28-2	Aroclor-1221	69	U
11141-16-5	Aroclor-1232	69	U
53469-21-9	Aroclor-1242	69	U
12672-29-6	Aroclor-1248	69	U
11097-69-1	Aroclor-1254	69	U
11096-82-5	Aroclor-1260	69	U

FORM 1
AROCLOR ANALYSIS DATA SHEET

EPA SAMPLE NO.

K22509

Lab Name: Aquatec, Inc.

Lab Code: AQUAI

Contract: 91082

Case: PCB

SDG: 40090

Phase Type: SOIL

Lab Sample ID: 200847

Phase Weight: 10.1 (g)

Date Received: 10/14/93

Injection Volume: 1.0 (uL)

Date Extracted: 10/19/93

Dilution Factor: 1.0

Date Analyzed: 11/21/93

% Solids: 73.03

Sulfur Clean-up: N (Y/N)

CAS NO.	COMPOUND	CONCENTRATION (ug/Kg)	Q
12674-11-2	Aroclor-1016	68	U
11104-28-2	Aroclor-1221	68	U
11141-16-5	Aroclor-1232	68	U
53469-21-9	Aroclor-1242	68	U
12672-29-6	Aroclor-1248	68	U
11097-69-1	Aroclor-1254	68	U
11096-82-5	Aroclor-1260	68	U

FORM 1
AROCOR ANALYSIS DATA SHEET

EPA SAMPLE NO.

K22510

Lab Name: Aquatec, Inc.

Lab Code: AQUAI

Contract: 91082

Case: PCB

SDG: 40090

Phase Type: SOIL

Lab Sample ID: 200848

Phase Weight: 10.0 (g)

Date Received: 10/14/93

Injection Volume: 1.0 (uL)

Date Extracted: 10/19/93

Dilution Factor: 1.0

Date Analyzed: 11/21/93

% Solids: 80.82

Sulfur Clean-up: N (Y/N)

CAS NO.	COMPOUND	CONCENTRATION (ug/Kg)	Q
12674-11-2	Aroclor-1016	62	U
11104-28-2	Aroclor-1221	62	U
11141-16-5	Aroclor-1232	62	U
53469-21-9	Aroclor-1242	62	U
12672-29-6	Aroclor-1248	98	
11097-69-1	Aroclor-1254	62	U
11096-82-5	Aroclor-1260	62	U

FORM 1
AROCOR ANALYSIS DATA SHEET

EPA SAMPLE NO.

K22511

Lab Name: Aquatec, Inc.

Lab Code: AQUAI

Contract: 91082

Case: PCB

SDG: 40090

Phase Type: SOIL

Lab Sample ID: 200849

Phase Weight: 10.1 (g)

Date Received: 10/14/93

Injection Volume: 1.0 (uL)

Date Extracted: 10/19/93

Dilution Factor: 1.0

Date Analyzed: 11/21/93

% Solids: 83.55

Sulfur Clean-up: N (Y/N)

CAS NO.	COMPOUND	CONCENTRATION (ug/Kg)	Q
12674-11-2	Aroclor-1016	60	U
11104-28-2	Aroclor-1221	60	U
11141-16-5	Aroclor-1232	60	U
53469-21-9	Aroclor-1242	60	U
12672-29-6	Aroclor-1248	60	U
11097-69-1	Aroclor-1254	60	U
11096-82-5	Aroclor-1260	60	U

FORM 1
AROCLOR ANALYSIS DATA SHEET

EPA SAMPLE NO.

K22512BE

Lab Name: Aquatec, Inc.

Lab Code: AQUAI

Contract: 91082

Case: PCB

SDG: 40090

Phase Type: SOIL

Lab Sample ID: 200850R1

Phase Weight: 10.1 (g)

Date Received: 10/14/93

Injection Volume: 1.0 (uL)

Date Extracted: 11/22/93

Dilution Factor: 1.0

Date Analyzed: 12/11/93

% Solids: 73.87

Sulfur Clean-up: N (Y/N)

CAS NO.	COMPOUND	CONCENTRATION (ug/Kg)	Q
12674-11-2	Aroclor-1016	68	U 5
11104-28-2	Aroclor-1221	68	U 5
11141-16-5	Aroclor-1232	68	U 5
53469-21-9	Aroclor-1242	68	U 5
12672-29-6	Aroclor-1248	68	U 5
11097-69-1	Aroclor-1254	68	U 5
11096-82-5	Aroclor-1260	68	U 5

FORM 1
AROCLOR ANALYSIS DATA SHEET

EPA SAMPLE NO.

K22513

Lab Name: Aquatec, Inc.

Lab Code: AQUAI

Contract: 91082

Case: PCB

SDG: 40090

Phase Type: SOIL

Lab Sample ID: 200851

Phase Weight: 10.0 (g)

Date Received: 10/14/93

Injection Volume: 1.0 (uL)

Date Extracted: 10/19/93

Dilution Factor: 1.0

Date Analyzed: 11/21/93

% Solids: 82.72

Sulfur Clean-up: N (Y/N)

CAS NO.	COMPOUND	CONCENTRATION (ug/Kg)	Q
12674-11-2	Aroclor-1016	61	U
11104-28-2	Aroclor-1221	61	U
11141-16-5	Aroclor-1232	61	U
53469-21-9	Aroclor-1242	61	U
12672-29-6	Aroclor-1248	240	
11097-69-1	Aroclor-1254	140	
11096-82-5	Aroclor-1260	39	J

FORM 1
AROCOR ANALYSIS DATA SHEET

EPA SAMPLE NO.

K22514BE

Lab Name: Aquatec, Inc.

Lab Code: AQUAI

Contract: 91082

Case: PCB

SDG: 40090

Phase Type: SOIL

Lab Sample ID: 200852R1

Phase Weight: 10.1 (g)

Date Received: 10/14/93

Injection Volume: 1.0 (uL)

Date Extracted: 11/22/93

Dilution Factor: 1.0

Date Analyzed: 12/11/93

% Solids: 78.74

Sulfur Clean-up: N (Y/N)

CAS NO.	COMPOUND	CONCENTRATION (ug/Kg)	Q
12674-11-2	Aroclor-1016	63	U J
11104-28-2	Aroclor-1221	63	U J
11141-16-5	Aroclor-1232	63	U J
53469-21-9	Aroclor-1242	63	U J
12672-29-6	Aroclor-1248	53	J
11097-69-1	Aroclor-1254	63	U J
11096-82-5	Aroclor-1260	63	U J

FORM 1
AROCOR ANALYSIS DATA SHEET

EPA SAMPLE NO.

K22515

Lab Name: Aquatec, Inc.

Lab Code: AQUAI

Contract: 91082

Case: PCB

SDG: 40090

Phase Type: SOIL

Lab Sample ID: 200853

Phase Weight: 10.1 (g)

Date Received: 10/14/93

Injection Volume: 1.0 (uL)

Date Extracted: 10/19/93

Dilution Factor: 1.0

Date Analyzed: 11/21/93

% Solids: 88.77

Sulfur Clean-up: N (Y/N)

CAS NO.	COMPOUND	CONCENTRATION (ug/Kg)	Q
12674-11-2	Aroclor-1016	56	U
11104-28-2	Aroclor-1221	56	U
11141-16-5	Aroclor-1232	56	U
53469-21-9	Aroclor-1242	56	U
12672-29-6	Aroclor-1248	84	
11097-69-1	Aroclor-1254	72	
11096-82-5	Aroclor-1260	56	U

FORM 1
AROCLOR ANALYSIS DATA SHEET

EPA SAMPLE NO.

K22516

Lab Name: Aquatec, Inc.

Lab Code: AQUAI

Contract: 91082

Case: PCB

SDG: 40090

Phase Type: SOIL

Lab Sample ID: 200854

Phase Weight: 9.9 (g)

Date Received: 10/14/93

Injection Volume: 1.0 (uL)

Date Extracted: 10/19/93

Dilution Factor: 1.0

Date Analyzed: 11/21/93

% Solids: 59.19

Sulfur Clean-up: N (Y/N)

CAS NO.	COMPOUND	CONCENTRATION (ug/Kg)	Q
12674-11-2	Aroclor-1016	86	U
11104-28-2	Aroclor-1221	86	U
11141-16-5	Aroclor-1232	86	U
53469-21-9	Aroclor-1242	930	
12672-29-6	Aroclor-1248	86	U
11097-69-1	Aroclor-1254	150	
11096-82-5	Aroclor-1260	86	U

FORM 1
AROCOR ANALYSIS DATA SHEET

EPA SAMPLE NO.

K22517

Lab Name: Aquatec, Inc.

Lab Code: AQUAI

Contract: 91082

Case: PCB

SDG: 40090

Phase Type: SOIL

Lab Sample ID: 200855

Phase Weight: 10.0 (g)

Date Received: 10/14/93

Injection Volume: 1.0 (uL)

Date Extracted: 10/19/93

Dilution Factor: 1.0

Date Analyzed: 11/21/93

% Solids: 75.02

Sulfur Clean-up: N (Y/N)

CAS NO.	COMPOUND	CONCENTRATION (ug/Kg)	Q
12674-11-2	Aroclor-1016	67	U
11104-28-2	Aroclor-1221	67	U
11141-16-5	Aroclor-1232	67	U
53469-21-9	Aroclor-1242	270	
12672-29-6	Aroclor-1248	58	J
11097-69-1	Aroclor-1254	58	J
11096-82-5	Aroclor-1260	67	U

FORM 1
AROCLOR ANALYSIS DATA SHEET

EPA SAMPLE NO.

K22518

Lab Name: Aquatec, Inc.

Lab Code: AQUAI

Contract: 91082

Case: PCB

SDG: 40090

Phase Type: SOIL

Lab Sample ID: 200856

Phase Weight: 10.0 (g)

Date Received: 10/14/93

Injection Volume: 1.0 (uL)

Date Extracted: 10/19/93

Dilution Factor: 1.0

Date Analyzed: 11/23/93

% Solids: 72.80

Sulfur Clean-up: N (Y/N)

CAS NO.	COMPOUND	CONCENTRATION (ug/Kg)	Q
12674-11-2	Aroclor-1016	69	U
11104-28-2	Aroclor-1221	69	U
11141-16-5	Aroclor-1232	69	U
53469-21-9	Aroclor-1242	69	U
12672-29-6	Aroclor-1248	37	J
11097-69-1	Aroclor-1254	27	J
11096-82-5	Aroclor-1260	69	U

FORM 1
AROCLOR ANALYSIS DATA SHEET

EPA SAMPLE NO.

K22519

Lab Name: Aquatec, Inc.

Lab Code: AQUAI

Contract: 91082

Case: PCB

SDG: 40090

Phase Type: SOIL

Lab Sample ID: 200857

Phase Weight: 10.0 (g)

Date Received: 10/14/93

Injection Volume: 1.0 (uL)

Date Extracted: 10/19/93

Dilution Factor: 1.0

Date Analyzed: 11/21/93

% Solids: 62.10

Sulfur Clean-up: N (Y/N)

CAS NO.	COMPOUND	CONCENTRATION (ug/Kg)	Q
12674-11-2	Aroclor-1016	81	U
11104-28-2	Aroclor-1221	81	U
11141-16-5	Aroclor-1232	81	U
53469-21-9	Aroclor-1242	80	J
12672-29-6	Aroclor-1248	81	U
11097-69-1	Aroclor-1254	81	U
11096-82-5	Aroclor-1260	81	U

**DATA REVIEW FOR
ALLIED PAPER, INC./PORTAGE CREEK/KALAMAZOO RIVER
SUPERFUND SITE**

SDG# 40144

PCB ANALYSES

GEOSTATISTICAL PILOT STUDY

Analyses performed by:

**Aquatec, Inc.
Colchester, Vermont**

Review performed by:

**Blasland & Bouck Engineers, P.C.
Syracuse, New York**

Summary

The following is an assessment of the PCB data package for SDG # 40144 for the Geostatistical Pilot Study sampling of river sediments from the Allied Paper, Inc./Portage Creek/Kalamazoo River Superfund Site. Included with this assessment are the data review check sheets used in the review of the package and corrected sample results. Analyses were performed on the following samples:

Sample ID	Lab ID	Matrix	Sample Date
K22539	201196	sediment	10/13/93
K22540	201197	sediment	10/13/93
K22542	201198	sediment	10/13/93
K22543	201199	sediment	10/13/93
K22544	201200	sediment	10/13/93
K22545	201201	sediment	10/13/93
K22546	201202	sediment	10/13/93
K22547	201203	sediment	10/13/93
K22548	201204	sediment	10/13/93
K22549	201205	sediment	10/13/93
K22550	201206	sediment	10/13/93
K22551	201207	sediment	10/13/93
K22552	201208	sediment	10/13/93
K22553	201209	sediment	10/13/93
K22554	201210	sediment	10/13/93
K22555	201211	sediment	10/13/93
K22556	201212	sediment	10/13/93
K22557	201213	sediment	10/13/93
K22558	201214	sediment	10/13/93
K22561*	201215	sediment	10/13/93

* MS/MSD performed on this sample

Introduction

Analyses were performed according to the USEPA SW-846 method 8081, modified for PCB only analysis.

The data review process is intended to evaluate the data on a technical basis. It is assumed that the data package represents the best efforts of the laboratory and had already been subjected to adequate and sufficient quality review prior to submission.

During the review process, laboratory qualified and unqualified data are verified against the supporting documentation. Based on this evaluation, qualifier codes may be added, deleted, or modified by the data reviewer. Results are qualified with the following codes in accordance with National Functional Guidelines:

- U The compound was analyzed for but not detected. The associated value is the compound quantitation limit.
- J The compound was positively identified; however, the associated numerical value is an estimated concentration only.
- B The compound has been found in the sample as well as its associated blank, its presence in the sample may be suspect.
- N The analysis indicates the presence of a compound for which there is presumptive evidence to make a tentative identification.
- JN The analysis indicates the presence of a compound for which there is presumptive evidence to make a tentative identification. The associated numerical value is an estimated concentration only.
- E The compound was quantitated above the calibration range.
- D Concentration is based on a diluted sample analysis.
- UJ The compound was not detected above the reported sample quantitation limit. However, the reported limit is approximate and may or may not represent the actual limit of quantitation.
- R The sample results are rejected.

Two facts should be noted by all data users. First, the "R" flag means that the associated value is unusable. In other words, due to significant QC problems, the analysis is invalid and provides no information as to whether the compound is present or not. "R" values should not appear on data tables because they cannot be relied upon, even as a last resort. The second fact to keep in mind is that no compound concentration, even if it has passed all QC test, is guaranteed to be accurate. Strict QC serves to increase confidence in data but any value potentially contains error.

The data presented in the package has been derived using a procedure developed by Aquatec, Inc. in an attempt to improve the analytical process of calibration, identification, and quantitation of PCBs as Aroclors. Key components of this procedure include:

Calibration

The response function of the electron capture detector is inherently non-linear, and while significant linearization is achieved for this detector by electronic means, some non-linearity remains. Power function linearization is used to "straighten the curve" and allow the use of response factors for calibration purposes.

During the initial calibration a response factor is calculated for each peak in the individual Aroclors.

A weighted response factor calculation has been used to adjust for non-linearity at the low end of the calibration curve.

Identification

Peak retention times are relative. Retention times are in set windows relative to the time markers DCB and TCMX. Time markers adjust for minor variations in column flow or instrument condition and allow the use of very tight windows which minimizes the number of both false positive and false negative peak identifications.

The determination of "which Aroclor or mixture of Aroclors will produce a chromatogram most similar to that of the residue" is made by expressing the unknown sample chromatogram as a linear combination of the Aroclors. The "most similar" Aroclor or mixture of Aroclors is determined by using a least squares minimization of the difference between the unknown chromatogram and the linear combination of Aroclors. This is similar to the procedure presented by L.E. Slivon, P.M. Schumacher and A. Alford-Stevens for the determination of Aroclor composition from GC/MS level of chlorination results.

Identification/quantitation of Aroclors in samples is based on the combined response of two columns, typically RTX-5 and RTX-35. The pooling of response combines the unique qualities of both columns to derive a more defined Aroclor pattern which is less likely to be affected by interferences. Identification/quantitation data for the individual columns is provided in the package and can be used as a check on the combined column results.

Data Assessment

1. Holding Time

The specified holding times for PCB analyses on soil samples is 10 days from date of sample receipt to extraction and 40 days from extraction to analysis. No deviations from these holding times were noted.

2. Blank Contamination

Quality assurance blanks, i.e., method, field or rinse blanks, are prepared to identify any contamination which may have been introduced in to the samples during sample preparation or field activity. Method blanks measure laboratory contamination. Field and rinse blanks measure contamination of samples during field operations.

No target compounds were detected in the method blanks, rinse blanks, or instrument blanks.

3. System Performance

The system performance was acceptable for both columns.

4. Calibration

Satisfactory instrument calibration is established to insure that the instrument is capable of producing acceptable quantitative data. An initial calibration demonstrates that the instrument is capable of giving acceptable performance at the beginning of an experimental sequence. The continuing calibration verifies that the instrument is giving satisfactory daily performance.

4.1 Initial Calibration

The method allows a maximum RSD of 20%. The %RSD was within acceptable limits for all Aroclors.

4.2 Continuing Calibration

A maximum %D of 15 is allowed. All continuing calibrations were within the specified limits.

5. Surrogates / System Monitoring Compounds

All samples to be analyzed for organic compounds are spiked with surrogate compounds prior to sample preparation to evaluate overall laboratory performance and efficiency of the analytical technique.

Recoveries were low for one surrogate in samples K22542, K22543, and K22547. No qualifiers have been added to the samples based on the recovery. All other surrogate recoveries were within acceptable limits.

6. Compound Identification

The determination of Aroclor presence is made by expressing the unknown sample chromatogram as a linear combination of the Aroclors. The most similar Aroclor or mixture of Aroclors is determined by using a least squares minimization of the difference between the unknown chromatogram and the linear combination of Aroclors.

Identification/quantitation of Aroclors is based on the combined response of the RTX-5 and RTX-35 columns. Identification/quantitation data for the individual columns is provided in the package and has been used as a check on the combined column results.

A review of the sample chromatograms indicate that the Aroclors have been correctly identified/quantitated for all samples with the exception of K22546. Aroclor 1260 had been identified in this sample. A review of the chromatograms showed no Aroclor 1260 to be present in the sample. The data has been corrected to reflect the conclusion.

The quantitated concentration between the combined and both individual columns were within acceptable limits for all samples. The Aroclors in samples K22539, K22547, K22548, and K22553 were identified/quantitated using the RTX-5 column results only.

7. Matrix Spike/Matrix Spike Duplicate

Matrix spike and matrix spike duplicate data are used to assess the precision and accuracy of the analytical method.

All matrix spike recoveries and relative percent differences between recoveries were within acceptable limits.

8. Field Duplicates

Results for duplicate samples are summarized below:

Sample	Result	Duplicate Sample	Result	RPD*
K22539	1242 - 45J	K22540	1242 - 56U	11.3%
	1254 - 55J		1254 - 56U	
K22549	1248 - 140	K22550	1248 - 55J	78.8%
	1254 - 51		1254 - 28J	

* RPD calculation based on total PCB content

The RPD results are within USEPA Region 5 guidance limits.

9. System Performance and Overall Assessment

Overall system performance was acceptable. Other than those deviations specifically mentioned in this review, the overall data quality is within the guidelines listed in the analytical method.

DATA REVIEW CHECKLIST

PCB Data Review Checklist

	YES	NO	NA
<u>Data Completeness and Deliverables</u>			
Is there a narrative or cover letter present?	<u>X</u>	<u> </u>	<u> </u>
Are the samples numbers included in the narrative?	<u>X</u>	<u> </u>	<u> </u>
Are the sample chain-of-custodies present?	<u>X</u>	<u> </u>	<u> </u>
Do the chain-of-custodies indicate any problems with sample receipt or sample condition?	<u> </u>	<u>X</u>	<u> </u>
<u>Holding Times</u>			
Have any holding times been exceeded?	<u> </u>	<u>X</u>	<u> </u>
<u>Surrogate Recovery</u>			
Are surrogate recovery forms present?	<u>X</u>	<u> </u>	<u> </u>
Are all the samples listed on the appropriate surrogate recovery form?	<u>X</u>	<u> </u>	<u> </u>
Are the outliers correctly marked with an asterisk?	<u>X</u>	<u> </u>	<u> </u>
Were recoveries of TCMX or DCB outside of specified limits for any sample or blank?	<u>X</u>	<u> </u>	<u> </u>
If yes, were the samples reanalyzed?	<u> </u>	<u>X</u>	<u> </u>
<u>Matrix Spikes</u>			
Is there a matrix spike recovery form present?	<u>X</u>	<u> </u>	<u> </u>
Were matrix spikes analyzed at the required frequency?	<u>X</u>	<u> </u>	<u> </u>
How many spike recoveries were outside of QC limits?			
<u> 0 </u> out of <u> 4 </u>			
How many RPDs for matrix spike and matrix spike duplicate were outside of QC limits?			
<u> 0 </u> out of <u> 2 </u>			
<u>Blanks</u>			
Is a Method Blank Summary Form present?	<u>X</u>	<u> </u>	<u> </u>
Has a method blank been analyzed for each set of samples or for each 20 samples, whichever is more frequent?	<u>X</u>	<u> </u>	<u> </u>
Has an instrument blank been analyzed at the beginning of each 12 hour period following the initial calibration?	<u>X</u>	<u> </u>	<u> </u>

PCB Data Review Checklist - Page 2

	YES	NO	NA
Is the chromatographic performance acceptable for each instrument?	<u>X</u>	<u> </u>	<u> </u>
Do any method/reagent/instrument blanks have positive results?	<u> </u>	<u>X</u>	<u> </u>
Do any field/rinse blanks have positive results?	<u> </u>	<u>X</u>	<u> </u>
Are there field/rinse/equipment blanks associated with every sample?	<u>X</u>	<u> </u>	<u> </u>
<u>Calibration and GC Performance</u>			
Are the following chromatograms and data printouts present?			
Aroclor 1016/1260	<u>X</u>	<u> </u>	<u> </u>
Aroclor 1221	<u>X</u>	<u> </u>	<u> </u>
Aroclor 1232	<u>X</u>	<u> </u>	<u> </u>
Aroclor 1242	<u>X</u>	<u> </u>	<u> </u>
Aroclor 1248	<u>X</u>	<u> </u>	<u> </u>
Aroclor 1254	<u>X</u>	<u> </u>	<u> </u>
Instrument Blanks	<u>X</u>	<u> </u>	<u> </u>
Are Initial Calibration Summary Forms present and complete for each column and analytical sequence?	<u>X</u>	<u> </u>	<u> </u>
Are the linearity criteria for the initial analyses within limits for both columns (20% RSD)	<u>X</u>	<u> </u>	<u> </u>
Have all samples been injected within a 12 hour period beginning with the injection of an instrument blank?	<u>X</u>	<u> </u>	<u> </u>
Is a Calibration Verification Summary Form present and complete for each continuing standard analyzed?	<u>X</u>	<u> </u>	<u> </u>
Are %D values for all compounds within limits (less than 15%)?	<u>X</u>	<u> </u>	<u> </u>
<u>Analytical Sequence Check</u>			
Is a analytical sequence form present and complete for each column and each period of analyses?	<u>X</u>	<u> </u>	<u> </u>
Was the proper analytical sequence followed?	<u>X</u>	<u> </u>	<u> </u>

PCB Data Review Checklist - Page 3

	YES	NO	NA
<u>Cleanup Efficiency Verification</u>			
If GPC cleanup was performed, is Gel Permeation Chromatography Check Form present?	<u>X</u>	<u> </u>	<u> </u>
Are percent recoveries of the compounds used to check the efficiency of the cleanup procedure within QC limits?	<u>X</u>	<u> </u>	<u> </u>
<u>PCB Identification</u>			
Is both a combined and single column Aroclor Identification Report present for every sample?	<u>X</u>	<u> </u>	<u> </u>
Do the combined column and individual column Aroclor identifications agree?	<u>X</u>	<u> </u>	<u> </u>
Were there any false negatives?	<u> </u>	<u>X</u>	<u> </u>
Was GC/MS confirmation provided when required?	<u> </u>	<u> </u>	<u>X</u>
<u>Compound Quantitation and Reported Detection Limits</u>			
Are the reporting limits adjusted to reflect sample dilutions, and for soils, sample moisture?	<u>X</u>	<u> </u>	<u> </u>
<u>Chromatogram Quality</u>			
Were the baselines stable?	<u>X</u>	<u> </u>	<u> </u>
Were any electronegative displacement (negative peaks) or unusual peaks detected?	<u> </u>	<u>X</u>	<u> </u>
<u>Field Duplicates</u>			
Where field duplicates submitted with the samples?	<u>X</u>	<u> </u>	<u> </u>

PCB Holding Time and Surrogate Recovery Summary

Sample ID	Holding Time	Surrogates - Column 1		Surrogates - Column 2	
		TCX	DCB	TCX	DCB
K22539	OK for all samples				
K22540					
K22542		↓ (54)		↓ (54)	
K22543		↓ (54)		↓ (54)	
K22544					
K22545					
K22546					
K22547		↓ (53)		↓ (54)	
K22548					
K22549					
K22550					
K22551					
K22552					
K22553					
K22554					
K22555					
K22556					
K22557					
K22558					
K22561					
K22561MS					
K22561MSD					

Surrogates:

TCX Tetrachloro-m-xylene
DCB Decachlorobiphenyl

Qualifiers:

D Surrogates diluted out
↑ Recovery high
↓ Recovery low

Unless otherwise noted, all parameters are within specified limits.

PCB Calibration Summary

Instrument: HP2618
 Column: RTX-35 / RTX-5

Date:	11/27 02:53	11/28	11/28	11/28	11/28	11/29	11/29
Time:	to 11/27 22:48	02:28	03:03	10:06	10:42	12:37	13:12
	Initial Cal.	Cont. Cal.	Cont. Cal.	Cont. Cal.	Cont. Cal.	Cont. Cal.	Cont. Cal.
	%RSD	%D	%D	%D	%D	%D	%D
Aroclor 1016	3.4 / 3.4		2.0				
Aroclor 1221	4.2 / 3.4						
Aroclor 1232	3.1 / 4.2						
Aroclor 1242	3.4 / 4.5				2.0		5.0
Aroclor 1248	2.9 / 3.0	1.0		3.5		0.5	
Aroclor 1254	3.2 / 3.6						
Aroclor 1260	2.8 / 2.7						
Tetrachloro-m-xylene	4.7 / 3.8						
Decachlorobiphenyl	7.7 / 7.6						
Affected Samples:							

PCB Calibration Summary - Page 2

Instrument: HP2618
 Column: RTX-35 / RTX-5

Date:		11/29	11/29	11/30	11/30	11/30	11/30
Time:		20:32	21:07	04:10	04:46	11:14	11:49
	Initial Cal.	Cont. Cal.	Cont. Cal.	Cont. Cal.	Cont. Cal.	Cont. Cal.	Cont. Cal.
	%RSD	%D	%D	%D	%D	%D	%D
Aroclor 1016							0.0
Aroclor 1221							
Aroclor 1232							
Aroclor 1242							
Aroclor 1248		5.5		1.5		1.0	
Aroclor 1254			8.0				
Aroclor 1260					8.0		
Tetrachloro-m-xylene							
Decachlorobiphenyl							
Affected Samples:							

PCB Calibration Summary - Page 3

Instrument: HP2618
 Column: RTX-35 / RTX-5

Date:		11/30	11/30	12/01	12/01	12/01	12/01
Time:		1706	1741	0945	1020	1206	1241
	Initial Cal.	Cont. Cal.	Cont. Cal.	Cont. Cal.	Cont. Cal.	Cont. Cal.	Cont. Cal.
	%RSD	%D	%D	%D	%D	%D	%D
Aroclor 1016							
Aroclor 1221							
Aroclor 1232							
Aroclor 1242			8.0				
Aroclor 1248		6.5		9.5		9.5	
Aroclor 1254					12.0		
Aroclor 1260							10.5
Tetrachloro-m-xylene							
Decachlorobiphenyl							
Affected Samples:							

CORRECTED ANALYSIS SUMMARY FORMS

FORM 1
AROCOR ANALYSIS DATA SHEET

EPA SAMPLE NO.

K22539

Lab Name: Aquatec, Inc.

Lab Code: AQUAI

Contract: 91082

Case: PCB

SDG: 40144

Phase Type: SOIL

Lab Sample ID: 201196

Phase Weight: 10.1 (g)

Date Received: 10/16/93

Injection Volume: 1.0 (uL)

Date Extracted: 10/22/93

Dilution Factor: 1.0

Date Analyzed: 11/28/93

% Solids: 88.43

Sulfur Clean-up: N (Y/N)

CAS NO.	COMPOUND	CONCENTRATION (ug/Kg)	Q
12674-11-2	Aroclor-1016	56	U
11104-28-2	Aroclor-1221	56	U
11141-16-5	Aroclor-1232	56	U
53469-21-9	Aroclor-1242	45	J
12672-29-6	Aroclor-1248	56	U
11097-69-1	Aroclor-1254	55	J
11096-82-5	Aroclor-1260	56	U

FORM 1
AROCLOL ANALYSIS DATA SHEET

EPA SAMPLE NO.

K22540

Lab Name: Aquatec, Inc.

Lab Code: AQUAI

Contract: 91082

Case: PCB

SDG: 40144

Phase Type: SOIL

Lab Sample ID: 201197

Phase Weight: 10.1 (g)

Date Received: 10/16/93

Injection Volume: 1.0 (uL)

Date Extracted: 10/22/93

Dilution Factor: 1.0

Date Analyzed: 12/01/93

% Solids: 89.66

Sulfur Clean-up: N (Y/N)

CAS NO.	COMPOUND	CONCENTRATION (ug/Kg)	Q
12674-11-2	Aroclor-1016	56	U
11104-28-2	Aroclor-1221	56	U
11141-16-5	Aroclor-1232	56	U
53469-21-9	Aroclor-1242	56	U
12672-29-6	Aroclor-1248	56	U
11097-69-1	Aroclor-1254	56	U
11096-82-5	Aroclor-1260	56	U

FORM 1
AROCOR ANALYSIS DATA SHEET

EPA SAMPLE NO.

K22542

Lab Name: Aquatec, Inc.

Lab Code: AQUAI

Contract: 91082

Case: PCB

SDG: 40144

Phase Type: SOIL

Lab Sample ID: 201198

Phase Weight: 10.1 (g)

Date Received: 10/16/93

Injection Volume: 1.0 (uL)

Date Extracted: 10/22/93

Dilution Factor: 1.0

Date Analyzed: 11/29/93

% Solids: 81.78

Sulfur Clean-up: Y (Y/N)

CAS NO.	COMPOUND	CONCENTRATION (ug/Kg)	Q
12674-11-2	Aroclor-1016	61	U
11104-28-2	Aroclor-1221	61	U
11141-16-5	Aroclor-1232	61	U
53469-21-9	Aroclor-1242	61	U
12672-29-6	Aroclor-1248	61	U
11097-69-1	Aroclor-1254	61	U
11096-82-5	Aroclor-1260	61	U

FORM 1
AROCLOR ANALYSIS DATA SHEET

EPA SAMPLE NO.

K22543

Lab Name: Aquatec, Inc.

Lab Code: AQUAI

Contract: 91082

Case: PCB

SDG: 40144

Phase Type: SOIL

Lab Sample ID: 201199

Phase Weight: 10.1 (g)

Date Received: 10/16/93

Injection Volume: 1.0 (uL)

Date Extracted: 10/22/93

Dilution Factor: 10.0

Date Analyzed: 11/28/93

% Solids: 86.84

Sulfur Clean-up: N (Y/N)

CAS NO.	COMPOUND	CONCENTRATION (ug/Kg)	Q
12674-11-2	Aroclor-1016	580	U
11104-28-2	Aroclor-1221	580	U
11141-16-5	Aroclor-1232	580	U
53469-21-9	Aroclor-1242	580	U
12672-29-6	Aroclor-1248	580	U
11097-69-1	Aroclor-1254	3600	
11096-82-5	Aroclor-1260	580	U

FORM 1
AROCLOL ANALYSIS DATA SHEET

EPA SAMPLE NO.

K22544

Lab Name: Aquatec, Inc.

Lab Code: AQUAI

Contract: 91082

Case: PCB

SDG: 40144

Phase Type: SOIL

Lab Sample ID: 201200

Phase Weight: 10.0 (g)

Date Received: 10/16/93

Injection Volume: 1.0 (uL)

Date Extracted: 10/22/93

Dilution Factor: 1.0

Date Analyzed: 11/28/93

% Solids: 89.08

Sulfur Clean-up: N (Y/N)

CAS NO.	COMPOUND	CONCENTRATION (ug/Kg)	Q
12674-11-2	Aroclor-1016	57	U
11104-28-2	Aroclor-1221	57	U
11141-16-5	Aroclor-1232	57	U
53469-21-9	Aroclor-1242	57	U
12672-29-6	Aroclor-1248	110	
11097-69-1	Aroclor-1254	180	
11096-82-5	Aroclor-1260	57	U

FORM 1
AROCOR ANALYSIS DATA SHEET

EPA SAMPLE NO.

K22545

Lab Name: Aquatec, Inc.

Lab Code: AQUAI

Contract: 91082

Case: PCB

SDG: 40144

Phase Type: SOIL

Lab Sample ID: 201201

Phase Weight: 9.9 (g)

Date Received: 10/16/93

Injection Volume: 1.0 (uL)

Date Extracted: 10/22/93

Dilution Factor: 1.0

Date Analyzed: 11/28/93

% Solids: 82.71

Sulfur Clean-up: N (Y/N)

CAS NO.	COMPOUND	CONCENTRATION (ug/Kg)	Q
12674-11-2	Aroclor-1016	62	U
11104-28-2	Aroclor-1221	62	U
11141-16-5	Aroclor-1232	62	U
53469-21-9	Aroclor-1242	62	U
12672-29-6	Aroclor-1248	580	
11097-69-1	Aroclor-1254	62	U
11096-82-5	Aroclor-1260	62	

FORM 1
AROCOR ANALYSIS DATA SHEET

EPA SAMPLE NO.

K22546

Lab Name: Aquatec, Inc.

Lab Code: AQUAI

Contract: 91082

Case: PCB

SDG: 40144

Phase Type: SOIL

Lab Sample ID: 201202

Phase Weight: 10.0 (g)

Date Received: 10/16/93

Injection Volume: 1.0 (uL)

Date Extracted: 10/22/93

Dilution Factor: 1.0

Date Analyzed: 11/28/93

% Solids: 82.78

Sulfur Clean-up: N (Y/N)

CAS NO.	COMPOUND	CONCENTRATION (ug/Kg)	Q
12674-11-2	Aroclor-1016	61	U
11104-28-2	Aroclor-1221	61	U
11141-16-5	Aroclor-1232	61	U
53469-21-9	Aroclor-1242	61	U
12672-29-6	Aroclor-1248	61	U
11097-69-1	Aroclor-1254	61	U
11096-82-5	Aroclor-1260	150-61	U

FORM 1
AROCOR ANALYSIS DATA SHEET

EPA SAMPLE NO.

K22547

Lab Name: Aquatec, Inc.

Lab Code: AQUAI

Contract: 91082

Case: PCB

SDG: 40144

Phase Type: SOIL

Lab Sample ID: 201203

Phase Weight: 10.1 (g)

Date Received: 10/16/93

Injection Volume: 1.0 (uL)

Date Extracted: 10/22/93

Dilution Factor: 1.0

Date Analyzed: 11/28/93

% Solids: 89.64

Sulfur Clean-up: N (Y/N)

CAS NO.	COMPOUND	CONCENTRATION (ug/Kg)	Q
12674-11-2	Aroclor-1016	56	U
11104-28-2	Aroclor-1221	56	U
11141-16-5	Aroclor-1232	56	U
53469-21-9	Aroclor-1242	56	U
12672-29-6	Aroclor-1248	56	U
- 11097-69-1	Aroclor-1254	44	J
11096-82-5	Aroclor-1260	56	U

FORM 1
AROCOR ANALYSIS DATA SHEET

EPA SAMPLE NO.

K22548

Lab Name: Aquatec, Inc.

Lab Code: AQUAI

Contract: 91082

Case: PCB

SDG: 40144

Phase Type: SOIL

Lab Sample ID: 201204

Phase Weight: 10.1 (g)

Date Received: 10/16/93

Injection Volume: 1.0 (uL)

Date Extracted: 10/22/93

Dilution Factor: 1.0

Date Analyzed: 11/28/93

% Solids: 84.76

Sulfur Clean-up: N (Y/N)

CAS NO.	COMPOUND	CONCENTRATION (ug/Kg)	Q
12674-11-2	Aroclor-1016	29	J
11104-28-2	Aroclor-1221	59	U
11141-16-5	Aroclor-1232	59	U
53469-21-9	Aroclor-1242	59	U
12672-29-6	Aroclor-1248	59	U
11097-69-1	Aroclor-1254	41	J
11096-82-5	Aroclor-1260	59	U

FORM 1
AROCOR ANALYSIS DATA SHEET

EPA SAMPLE NO.

K22549

Lab Name: Aquatec, Inc.

Lab Code: AQUAI

Contract: 91082

Case: PCB

SDG: 40144

Phase Type: SOIL

Lab Sample ID: 201205

Phase Weight: 10.0 (g)

Date Received: 10/16/93

Injection Volume: 1.0 (uL)

Date Extracted: 10/22/93

Dilution Factor: 1.0

Date Analyzed: 11/29/93

% Solids: 84.68

Sulfur Clean-up: Y (Y/N)

CAS NO.	COMPOUND	CONCENTRATION (ug/Kg)	Q
12674-11-2	Aroclor-1016	60	U
11104-28-2	Aroclor-1221	60	U
11141-16-5	Aroclor-1232	60	U
53469-21-9	Aroclor-1242	60	U
12672-29-6	Aroclor-1248	140	
11097-69-1	Aroclor-1254	51	J
11096-82-5	Aroclor-1260	60	U

FORM 1
AROCOR ANALYSIS DATA SHEET

EPA SAMPLE NO.

K22550

Lab Name: Aquatec, Inc.

Lab Code: AQUAI

Contract: 91082

Case: PCB

SDG: 40144

Phase Type: SOIL

Lab Sample ID: 201206

Phase Weight: 10.0 (g)

Date Received: 10/16/93

Injection Volume: 1.0 (uL)

Date Extracted: 10/22/93

Dilution Factor: 1.0

Date Analyzed: 11/30/93

% Solids: 87.80

Sulfur Clean-up: N (Y/N)

CAS NO.	COMPOUND	CONCENTRATION (ug/Kg)	Q
12674-11-2	Aroclor-1016	57	U
11104-28-2	Aroclor-1221	57	U
11141-16-5	Aroclor-1232	57	U
53469-21-9	Aroclor-1242	57	U
12672-29-6	Aroclor-1248	55	J
11097-69-1	Aroclor-1254	28	J
11096-82-5	Aroclor-1260	57	U

FORM 1
AROCOR ANALYSIS DATA SHEET

EPA SAMPLE NO.

K22551

Lab Name: Aquatec, Inc.

Lab Code: AQUAI

Contract: 91082

Case: PCB

SDG: 40144

Phase Type: SOIL

Lab Sample ID: 201207

Phase Weight: 9.9 (g)

Date Received: 10/16/93

Injection Volume: 1.0 (uL)

Date Extracted: 10/22/93

Dilution Factor: 1.0

Date Analyzed: 11/29/93

% Solids: 89.61

Sulfur Clean-up: Y (Y/N)

CAS NO.	COMPOUND	CONCENTRATION (ug/Kg)	Q
12674-11-2	Aroclor-1016	57	U
11104-28-2	Aroclor-1221	57	U
11141-16-5	Aroclor-1232	57	U
53469-21-9	Aroclor-1242	57	U
12672-29-6	Aroclor-1248	57	U
11097-69-1	Aroclor-1254	57	U
11096-82-5	Aroclor-1260	57	U

FORM 1
AROCOR ANALYSIS DATA SHEET

EPA SAMPLE NO.

K22552

Lab Name: Aquatec, Inc.

Lab Code: AQUAI

Contract: 91082

Case: PCB

SDG: 40144

Phase Type: SOIL

Lab Sample ID: 201208

Phase Weight: 10.0 (g)

Date Received: 10/16/93

Injection Volume: 1.0 (uL)

Date Extracted: 10/22/93

Dilution Factor: 1.0

Date Analyzed: 11/29/93

% Solids: 79.07

Sulfur Clean-up: Y (Y/N)

CAS NO.	COMPOUND	CONCENTRATION (ug/Kg)	Q
12674-11-2	Aroclor-1016	64	U
11104-28-2	Aroclor-1221	64	U
11141-16-5	Aroclor-1232	64	U
53469-21-9	Aroclor-1242	270	
12672-29-6	Aroclor-1248	80	
11097-69-1	Aroclor-1254	140	
11096-82-5	Aroclor-1260	33	J

FORM 1
AROCLOR ANALYSIS DATA SHEET

EPA SAMPLE NO.

K22553

Lab Name: Aquatec, Inc.

Lab Code: AQUAI

Contract: 91082

Case: PCB

SDG: 40144

Phase Type: SOIL

Lab Sample ID: 201209

Phase Weight: 10.1 (g)

Date Received: 10/16/93

Injection Volume: 1.0 (uL)

Date Extracted: 10/22/93

Dilution Factor: 1.0

Date Analyzed: 11/30/93

% Solids: 84.38

Sulfur Clean-up: N (Y/N)

CAS NO.	COMPOUND	CONCENTRATION (ug/Kg)	Q
12674-11-2	Aroclor-1016	59	U
11104-28-2	Aroclor-1221	59	U
11141-16-5	Aroclor-1232	59	U
53469-21-9	Aroclor-1242	59	U
12672-29-6	Aroclor-1248	59	U
11097-69-1	Aroclor-1254	24	J
11096-82-5	Aroclor-1260	59	U

FORM 1
AROCOR ANALYSIS DATA SHEET

EPA SAMPLE NO.

K22554

Lab Name: Aquatec, Inc.

Lab Code: AQUAI

Contract: 91082

Case: PCB

SDG: 40144

Phase Type: SOIL

Lab Sample ID: 201210

Phase Weight: 10.1 (g)

Date Received: 10/16/93

Injection Volume: 1.0 (uL)

Date Extracted: 10/22/93

Dilution Factor: 10.0

Date Analyzed: 11/30/93

% Solids: 73.18

Sulfur Clean-up: N (Y/N)

CAS NO.	COMPOUND	CONCENTRATION (ug/Kg)	Q
12674-11-2	Aroclor-1016	680	U
11104-28-2	Aroclor-1221	680	U
11141-16-5	Aroclor-1232	680	U
53469-21-9	Aroclor-1242	5700	
12672-29-6	Aroclor-1248	2100	
11097-69-1	Aroclor-1254	680	U
11096-82-5	Aroclor-1260	680	U

FORM 1
AROCOR ANALYSIS DATA SHEET

EPA SAMPLE NO.

K22555

Lab Name: Aquatec, Inc.

Lab Code: AQUAI

Contract: 91082

Case: PCB

SDG: 40144

Phase Type: SOIL

Lab Sample ID: 201211

Phase Weight: 10.1 (g)

Date Received: 10/16/93

Injection Volume: 1.0 (uL)

Date Extracted: 10/22/93

Dilution Factor: 1.0

Date Analyzed: 11/29/93

% Solids: 79.37

Sulfur Clean-up: Y (Y/N)

CAS NO.	COMPOUND	CONCENTRATION (ug/Kg)	Q
12674-11-2	Aroclor-1016	63	U
11104-28-2	Aroclor-1221	63	U
11141-16-5	Aroclor-1232	63	U
53469-21-9	Aroclor-1242	79	
12672-29-6	Aroclor-1248	63	U
11097-69-1	Aroclor-1254	63	U
11096-82-5	Aroclor-1260	63	U

FORM 1
AROCOR ANALYSIS DATA SHEET

EPA SAMPLE NO.

K22556

Lab Name: Aquatec, Inc.

Lab Code: AQUAI

Contract: 91082

Case: PCB

SDG: 40144

Phase Type: SOIL

Lab Sample ID: 201212

Phase Weight: 10.0 (g)

Date Received: 10/16/93

Injection Volume: 1.0 (uL)

Date Extracted: 10/22/93

Dilution Factor: 5.0

Date Analyzed: 11/30/93

% Solids: 62.18

Sulfur Clean-up: N (Y/N)

CAS NO.	COMPOUND	CONCENTRATION (ug/Kg)	Q
12674-11-2	Aroclor-1016	410	U
11104-28-2	Aroclor-1221	410	U
11141-16-5	Aroclor-1232	410	U
53469-21-9	Aroclor-1242	410	U
12672-29-6	Aroclor-1248	3600	
11097-69-1	Aroclor-1254	410	U
11096-82-5	Aroclor-1260	360	J

FORM 1
AROCOR ANALYSIS DATA SHEET

EPA SAMPLE NO.

K22557

Lab Name: Aquatec, Inc.

Lab Code: AQUAI

Contract: 91082

Case: PCB

SDG: 40144

Phase Type: SOIL

Lab Sample ID: 201213

Phase Weight: 9.9 (g)

Date Received: 10/16/93

Injection Volume: 1.0 (uL)

Date Extracted: 10/22/93

Dilution Factor: 10.0

Date Analyzed: 11/30/93

% Solids: 58.31

Sulfur Clean-up: N (Y/N)

CAS NO.	COMPOUND	CONCENTRATION (ug/Kg)	Q
12674-11-2	Aroclor-1016	870	U
11104-28-2	Aroclor-1221	870	U
11141-16-5	Aroclor-1232	870	U
53469-21-9	Aroclor-1242	870	U
12672-29-6	Aroclor-1248	5000	
11097-69-1	Aroclor-1254	870	U
11096-82-5	Aroclor-1260	430	J

FORM 1
AROCOR ANALYSIS DATA SHEET

EPA SAMPLE NO.

K22558

Lab Name: Aquatec, Inc.

Lab Code: AQUAI

Contract: 91082

Case: PCB

SDG: 40144

Phase Type: SOIL

Lab Sample ID: 201214

Phase Weight: 10.1 (g)

Date Received: 10/16/93

Injection Volume: 1.0 (uL)

Date Extracted: 10/22/93

Dilution Factor: 5.0

Date Analyzed: 11/29/93

% Solids: 73.49

Sulfur Clean-up: Y (Y/N)

CAS NO.	COMPOUND	CONCENTRATION (ug/Kg)	Q
12674-11-2	Aroclor-1016	340	U
11104-28-2	Aroclor-1221	340	U
11141-16-5	Aroclor-1232	340	U
53469-21-9	Aroclor-1242	340	U
12672-29-6	Aroclor-1248	1400	
11097-69-1	Aroclor-1254	650	
11096-82-5	Aroclor-1260	170	J

FORM 1
AROCOR ANALYSIS DATA SHEET

EPA SAMPLE NO.

K22561

Lab Name: Aquatec, Inc.

Lab Code: AQUAI

Contract: 91082

Case: PCB

SDG: 40144

Phase Type: SOIL

Lab Sample ID: 201215

Phase Weight: 9.9 (g)

Date Received: 10/16/93

Injection Volume: 1.0 (uL)

Date Extracted: 10/22/93

Dilution Factor: 1.0

Date Analyzed: 11/29/93

% Solids: 70.28

Sulfur Clean-up: N (Y/N)

CAS NO.	COMPOUND	CONCENTRATION (ug/Kg)	Q
12674-11-2	Aroclor-1016	72	U
11104-28-2	Aroclor-1221	72	U
11141-16-5	Aroclor-1232	72	U
53469-21-9	Aroclor-1242	72	U
12672-29-6	Aroclor-1248	1000	
11097-69-1	Aroclor-1254	72	U
11096-82-5	Aroclor-1260	110	

**DATA REVIEW FOR
ALLIED PAPER, INC./PORTAGE CREEK/KALAMAZOO RIVER
SUPERFUND SITE**

**SDG# 40145
PCB ANALYSES**

GEOSTATISTICAL PILOT STUDY

Analyses performed by:

**Aquatec, Inc.
Colchester, Vermont**

Review performed by:

**Blasland & Bouck Engineers, P.C.
Syracuse, New York**

Summary

The following is an assessment of the PCB data package for SDG # 40145 for the Geostatistical Pilot Study sampling of river sediments from the Allied Paper, Inc./Portage Creek/Kalamazoo River Superfund Site. Included with this assessment are the data review check sheets used in the review of the package and corrected sample results. Analyses were performed on the following samples:

Sample ID	Lab ID	Matrix	Sample Date
K22559	201217	sediment	10/13/93
K22560	201218	sediment	10/13/93
K22562	201219	sediment	10/13/93
K22563	201220	sediment	10/13/93
K22564	201221	sediment	10/13/93
K22565	201222	sediment	10/13/93
K22566	201223	sediment	10/13/93
K22567	201224	sediment	10/13/93
K22568	201225	sediment	10/13/93
K22569	201226	sediment	10/13/93
K22570	201227	sediment	10/13/93
K22571	201228	sediment	10/13/93
K22572	201229	sediment	10/13/93
K22573	201230	sediment	10/13/93
K22574	201231	sediment	10/13/93
K22575	201232	sediment	10/14/93
K22576	201233	sediment	10/14/93
K22577	201234	sediment	10/14/93
K22578	201235	sediment	10/14/93
K22581*	201236	sediment	10/14/93

* MS/MSD performed on this sample

Introduction

Analyses were performed according to the USEPA SW-846 method 8081, modified for PCB only analysis.

The data review process is intended to evaluate the data on a technical basis. It is assumed that the data package represents the best efforts of the laboratory and had already been subjected to adequate and sufficient quality review prior to submission.

During the review process, laboratory qualified and unqualified data are verified against the supporting documentation. Based on this evaluation, qualifier codes may be added, deleted, or modified by the data reviewer. Results are qualified with the following codes in accordance with National Functional Guidelines:

- U The compound was analyzed for but not detected. The associated value is the compound quantitation limit.
- J The compound was positively identified; however, the associated numerical value is an estimated concentration only.
- B The compound has been found in the sample as well as its associated blank, its presence in the sample may be suspect.
- N The analysis indicates the presence of a compound for which there is presumptive evidence to make a tentative identification.
- JN The analysis indicates the presence of a compound for which there is presumptive evidence to make a tentative identification. The associated numerical value is an estimated concentration only.
- E The compound was quantitated above the calibration range.
- D Concentration is based on a diluted sample analysis.
- UJ The compound was not detected above the reported sample quantitation limit. However, the reported limit is approximate and may or may not represent the actual limit of quantitation.
- R The sample results are rejected.

Two facts should be noted by all data users. First, the "R" flag means that the associated value is unusable. In other words, due to significant QC problems, the analysis is invalid and provides no information as to whether the compound is present or not. "R" values should not appear on data tables because they cannot be relied upon, even as a last resort. The second fact to keep in mind is that no compound concentration, even if it has passed all QC test, is guaranteed to be accurate. Strict QC serves to increase confidence in data but any value potentially contains error.

The data presented in the package has been derived using a procedure developed by Aquatec, Inc. in an attempt to improve the analytical process of calibration, identification, and quantitation of PCBs as Aroclors. Key components of this procedure include:

Calibration

The response function of the electron capture detector is inherently non-linear, and while significant linearization is achieved for this detector by electronic means, some non-linearity remains. Power function linearization is used to "straighten the curve" and allow the use of response factors for calibration purposes.

During the initial calibration a response factor is calculated for each peak in the individual Aroclors.

A weighted response factor calculation has been used to adjust for non-linearity at the low end of the calibration curve.

Identification

Peak retention times are relative. Retention times are in set windows relative to the time markers DCB and TCMX. Time markers adjust for minor variations in column flow or instrument condition and allow the use of very tight windows which minimizes the number of both false positive and false negative peak identifications.

The determination of "which Aroclor or mixture of Aroclors will produce a chromatogram most similar to that of the residue" is made by expressing the unknown sample chromatogram as a linear combination of the Aroclors. The "most similar" Aroclor or mixture of Aroclors is determined by using a least squares minimization of the difference between the unknown chromatogram and the linear combination of Aroclors. This is similar to the procedure presented by L.E. Slivon, P.M. Schumacher and A. Alford-Stevens for the determination of Aroclor composition from GC/MS level of chlorination results.

Identification/quantitation of Aroclors in samples is based on the combined response of two columns, typically RTX-5 and RTX-35. The pooling of response combines the unique qualities of both columns to derive a more defined Aroclor pattern which is less likely to be affected by interferences. Identification/quantitation data for the individual columns is provided in the package and can be used as a check on the combined column results.

Data Assessment

1. Holding Time

The specified holding times for PCB analyses on soil samples is 10 days from date of sample receipt to extraction and 40 days from extraction to analysis. No deviations from these holding times were noted.

2. Blank Contamination

Quality assurance blanks, i.e., method, field or rinse blanks, are prepared to identify any contamination which may have been introduced in to the samples during sample preparation or field activity. Method blanks measure laboratory contamination. Field and rinse blanks measure contamination of samples during field operations.

No target compounds were detected in the method blanks, rinse blanks, or instrument blanks.

3. System Performance

The system performance was acceptable for both columns.

4. Calibration

Satisfactory instrument calibration is established to insure that the instrument is capable of producing acceptable quantitative data. An initial calibration demonstrates that the instrument is capable of giving acceptable performance at the beginning of an experimental sequence. The continuing calibration verifies that the instrument is giving satisfactory daily performance.

4.1 Initial Calibration

The method allows a maximum RSD of 20%. The %RSD was within acceptable limits for all Aroclors.

4.2 Continuing Calibration

A maximum %D of 15 is allowed. All continuing calibrations were within the specified limits.

5. Surrogates / System Monitoring Compounds

All samples to be analyzed for organic compounds are spiked with surrogate compounds prior to sample preparation to evaluate overall laboratory performance and efficiency of the analytical technique.

Recoveries were low for one surrogate in samples K22581-MS and K22581-MSD. No qualifiers have been added to the spikes based on the recoveries. All other surrogate recoveries were within acceptable limits.

6. Compound Identification

The determination of Aroclor presence is made by expressing the unknown sample chromatogram as a linear combination of the Aroclors. The most similar Aroclor or mixture of Aroclors is determined by using a least squares minimization of the difference between the unknown chromatogram and the linear combination of Aroclors.

Identification/quantitation of Aroclors is based on the combined response of the RTX-5 and RTX-35 columns. Identification/quantitation data for the individual columns is provided in the package and has been used as a check on the combined column results.

A review of the sample chromatograms indicate that the Aroclors have been correctly identified/quantitated for all samples with the exception of K22567 and K22574. Aroclors had been identified in these samples. A review of the chromatograms showed the presence of potential Aroclor peaks, but no specific Aroclor patterns. The data has been corrected to reflect the conclusion.

The quantitated concentration between the combined and both individual columns were within acceptable limits for all samples. The Aroclors in samples K22572 and K22577 have been identified/quantitated using the RTX-5 column results only.

7. Matrix Spike/Matrix Spike Duplicate

Matrix spike and matrix spike duplicate data are used to assess the precision and accuracy of the analytical method.

All matrix spike recoveries and relative percent differences between recoveries were within acceptable limits.

8. Field Duplicates

Results for duplicate samples are summarized below:

Sample	Result	Duplicate Sample	Result	RPD
K22559	ND	K22560	ND	--
K22569	ND	K22570	ND	--

The samples replicate through non-detection.

9. System Performance and Overall Assessment

Overall system performance was acceptable. Other than those deviations specifically mentioned in this review, the overall data quality is within the guidelines listed in the analytical method.

DATA REVIEW CHECKLIST

PCB Data Review Checklist

	YES	NO	NA
<u>Data Completeness and Deliverables</u>			
Is there a narrative or cover letter present?	<u>X</u>	<u> </u>	<u> </u>
Are the samples numbers included in the narrative?	<u>X</u>	<u> </u>	<u> </u>
Are the sample chain-of-custodies present?	<u>X</u>	<u> </u>	<u> </u>
Do the chain-of-custodies indicate any problems with sample receipt or sample condition?	<u> </u>	<u>X</u>	<u> </u>
<u>Holding Times</u>			
Have any holding times been exceeded?	<u> </u>	<u>X</u>	<u> </u>
<u>Surrogate Recovery</u>			
Are surrogate recovery forms present?	<u>X</u>	<u> </u>	<u> </u>
Are all the samples listed on the appropriate surrogate recovery form?	<u>X</u>	<u> </u>	<u> </u>
Are the outliers correctly marked with an asterisk?	<u>X</u>	<u> </u>	<u> </u>
Were recoveries of TCMX or DCB outside of specified limits for any sample or blank?	<u>X</u>	<u> </u>	<u> </u>
If yes, were the samples reanalyzed?	<u> </u>	<u>X</u>	<u> </u>
<u>Matrix Spikes</u>			
Is there a matrix spike recovery form present?	<u>X</u>	<u> </u>	<u> </u>
Were matrix spikes analyzed at the required frequency?	<u>X</u>	<u> </u>	<u> </u>
How many spike recoveries were outside of QC limits?			
<u> 0 </u> out of <u> 4 </u>			
How many RPDs for matrix spike and matrix spike duplicate were outside of QC limits?			
<u> 0 </u> out of <u> 2 </u>			
<u>Blanks</u>			
Is a Method Blank Summary Form present?	<u>X</u>	<u> </u>	<u> </u>
Has a method blank been analyzed for each set of samples or for each 20 samples, whichever is more frequent?	<u>X</u>	<u> </u>	<u> </u>
Has an instrument blank been analyzed at the beginning of each 12 hour period following the initial calibration?	<u>X</u>	<u> </u>	<u> </u>

PCB Data Review Checklist - Page 2

	YES	NO	NA
Is the chromatographic performance acceptable for each instrument?	<u>X</u>	<u> </u>	<u> </u>
Do any method/reagent/instrument blanks have positive results?	<u> </u>	<u>X</u>	<u> </u>
Do any field/rinse blanks have positive results?	<u> </u>	<u>X</u>	<u> </u>
Are there field/rinse/equipment blanks associated with every sample?	<u>X</u>	<u> </u>	<u> </u>
<u>Calibration and GC Performance</u>			
Are the following chromatograms and data printouts present?			
Aroclor 1016/1260	<u>X</u>	<u> </u>	<u> </u>
Aroclor 1221	<u>X</u>	<u> </u>	<u> </u>
Aroclor 1232	<u>X</u>	<u> </u>	<u> </u>
Aroclor 1242	<u>X</u>	<u> </u>	<u> </u>
Aroclor 1248	<u>X</u>	<u> </u>	<u> </u>
Aroclor 1254	<u>X</u>	<u> </u>	<u> </u>
Instrument Blanks	<u>X</u>	<u> </u>	<u> </u>
Are Initial Calibration Summary Forms present and complete for each column and analytical sequence?	<u>X</u>	<u> </u>	<u> </u>
Are the linearity criteria for the initial analyses within limits for both columns (20% RSD)	<u>X</u>	<u> </u>	<u> </u>
Have all samples been injected within a 12 hour period beginning with the injection of an instrument blank?	<u>X</u>	<u> </u>	<u> </u>
Is a Calibration Verification Summary Form present and complete for each continuing standard analyzed?	<u>X</u>	<u> </u>	<u> </u>
Are %D values for all compounds within limits (less than 15%)?	<u>X</u>	<u> </u>	<u> </u>
<u>Analytical Sequence Check</u>			
Is a analytical sequence form present and complete for each column and each period of analyses?	<u>X</u>	<u> </u>	<u> </u>
Was the proper analytical sequence followed?	<u>X</u>	<u> </u>	<u> </u>

PCB Data Review Checklist - Page 3

	YES	NO	NA
<u>Cleanup Efficiency Verification</u>			
If GPC cleanup was performed, is Gel Permeation Chromatography Check Form present?	<u>X</u>	<u> </u>	<u> </u>
Are percent recoveries of the compounds used to check the efficiency of the cleanup procedure within QC limits?	<u>X</u>	<u> </u>	<u> </u>
<u>PCB Identification</u>			
Is both a combined and single column Aroclor Identification Report present for every sample?	<u>X</u>	<u> </u>	<u> </u>
Do the combined column and individual column Aroclor identifications agree?	<u>X</u>	<u> </u>	<u> </u>
Were there any false negatives?	<u> </u>	<u>X</u>	<u> </u>
Was GC/MS confirmation provided when required?	<u> </u>	<u> </u>	<u>X</u>
<u>Compound Quantitation and Reported Detection Limits</u>			
Are the reporting limits adjusted to reflect sample dilutions, and for soils, sample moisture?	<u>X</u>	<u> </u>	<u> </u>
<u>Chromatogram Quality</u>			
Were the baselines stable?	<u>X</u>	<u> </u>	<u> </u>
Were any electronegative displacement (negative peaks) or unusual peaks detected?	<u> </u>	<u>X</u>	<u> </u>
<u>Field Duplicates</u>			
Where field duplicates submitted with the samples?	<u>X</u>	<u> </u>	<u> </u>

**PCB Holding Time and Surrogate
Recovery Summary**

Sample ID	Holding Time	Surrogates - Column 1		Surrogates - Column 2	
		TCX	DCB	TCX	DCB
K22559	OK for all samples				
K22560					
K22562					
K22563					
K22564					
K22565					
K22566					
K22567					
K22568					
K22569					
K22570					
K22571					
K22572					
K22573					
K22574					
K22575					
K22576					
K22577					
K22578					
K22581					
K22581MS		↓ (53)		↓ (55)	
K22581MSD		↓ (54)		↓ (56)	

Surrogates:

TCX Tetrachloro-m-xylene
DCB Decachlorobiphenyl

Qualifiers:

D Surrogates diluted out
↑ Recovery high
↓ Recovery low

Unless otherwise noted, all parameters are within specified limits.

PCB Calibration Summary

Instrument: HP2618
 Column: RTX-35 / RTX-5

Date:	11/6 01:47	11/08	11/09	11/09	11/09	11/09	11/09
Time:	to 11/6 21:47	23:43	00:18	07:57	08:33	15:37	16:12
	Initial Cal.	Cont. Cal.	Cont. Cal.	Cont. Cal.	Cont. Cal.	Cont. Cal.	Cont. Cal.
	%RSD	%D	%D	%D	%D	%D	%D
Aroclor 1016	3.9 / 4.8						
Aroclor 1221	6.9 / 5.4						
Aroclor 1232	3.2 / 5.7						
Aroclor 1242	2.8 / 5.0		11.2				
Aroclor 1248	3.7 / 4.9	11.5		11.5		11.0	
Aroclor 1254	2.5 / 4.8				9.5		
Aroclor 1260	3.5 / 4.1						13.0
Tetrachloro-m-xylene	2.8 / 3.2						
Decachlorobiphenyl	11.6 / 10.8						
Affected Samples:							

PCB Calibration Summary - Page 2

Instrument: HP2618
 Column: RTX-35 / RTX-5

Date:		11/09	11/09	11/10	11/10	11/11	11/11
Time:		21:30	22:05	17:23	17:59	01:01	01:36
	Initial Cal.	Cont. Cal.	Cont. Cal.	Cont. Cal.	Cont. Cal.	Cont. Cal.	Cont. Cal.
	%RSD	%D	%D	%D	%D	%D	%D
Aroclor 1016			5.5				
Aroclor 1221							
Aroclor 1232							
Aroclor 1242					14.0		
Aroclor 1248		8.0		14.5		7.0	
Aroclor 1254							7.0
Aroclor 1260							
Tetrachloro-m-xylene							
Decachlorobiphenyl							
Affected Samples:							

PCB Calibration Summary - Page 3

Instrument: HP2618
 Column: RTX-35 / RTX-5

Date:		11/11	11/11				
Time:		06:54	07:29				
	Initial Cal.	Cont. Cal.	Cont. Cal.	Cont. Cal.	Cont. Cal.	Cont. Cal.	Cont. Cal.
	%RSD	%D	%D	%D	%D	%D	%D
Aroclor 1016							
Aroclor 1221							
Aroclor 1232							
Aroclor 1242							
Aroclor 1248		7.0					
Aroclor 1254							
Aroclor 1260			8.5				
Tetrachloro-m-xylene							
Decachlorobiphenyl							
Affected Samples:							

CORRECTED ANALYSIS SUMMARY FORMS

FORM 1
AROCOR ANALYSIS DATA SHEET

EPA SAMPLE NO.

K22559

Lab Name: Aquatec, Inc.

Lab Code: AQUAI

Contract: 91082

Case: PCB

SDG: 40145

Phase Type: SOIL

Lab Sample ID: 201217

Phase Weight: 10.0 (g)

Date Received: 10/16/93

Injection Volume: 1.0 (uL)

Date Extracted: 10/21/93

Dilution Factor: 1.0

Date Analyzed: 11/10/93

% Solids: 78.06

Sulfur Clean-up: N (Y/N)

CAS NO.	COMPOUND	CONCENTRATION (ug/Kg)	Q
12674-11-2	Aroclor-1016	65	U
11104-28-2	Aroclor-1221	65	U
11141-16-5	Aroclor-1232	65	U
53469-21-9	Aroclor-1242	65	U
12672-29-6	Aroclor-1248	65	U
11097-69-1	Aroclor-1254	65	U
11096-82-5	Aroclor-1260	65	U

FORM 1
AROCLOR ANALYSIS DATA SHEET

EPA SAMPLE NO.

K22560

Lab Name: Aquatec, Inc.

Lab Code: AQUAI

Contract: 91082

Case: PCB

SDG: 40145

Phase Type: SOIL

Lab Sample ID: 201218

Phase Weight: 10.0 (g)

Date Received: 10/16/93

Injection Volume: 1.0 (uL)

Date Extracted: 10/21/93

Dilution Factor: 1.0

Date Analyzed: 11/10/93

% Solids: 83.65

Sulfur Clean-up: N (Y/N)

CAS NO.	COMPOUND	CONCENTRATION (ug/Kg)	Q
12674-11-2	Aroclor-1016	60	U
11104-28-2	Aroclor-1221	60	U
11141-16-5	Aroclor-1232	60	U
53469-21-9	Aroclor-1242	60	U
12672-29-6	Aroclor-1248	60	U
11097-69-1	Aroclor-1254	60	U
11096-82-5	Aroclor-1260	60	U

FORM 1
AROCLOR ANALYSIS DATA SHEET

EPA SAMPLE NO.

K22562

Lab Name: Aquatec, Inc.

Lab Code: AQUAI

Contract: 91082

Case: PCB

SDG: 40145

Phase Type: SOIL

Lab Sample ID: 201219

Phase Weight: 10.1 (g)

Date Received: 10/16/93

Injection Volume: 1.0 (uL)

Date Extracted: 10/21/93

Dilution Factor: 1.0

Date Analyzed: 11/10/93

% Solids: 53.08

Sulfur Clean-up: N (Y/N)

CAS NO.	COMPOUND	CONCENTRATION (ug/Kg)	Q
12674-11-2	Aroclor-1016	94	U
11104-28-2	Aroclor-1221	94	U
11141-16-5	Aroclor-1232	94	U
53469-21-9	Aroclor-1242	94	U
12672-29-6	Aroclor-1248	94	U
11097-69-1	Aroclor-1254	94	U
11096-82-5	Aroclor-1260	94	U

FORM 1
AROCOR ANALYSIS DATA SHEET

EPA SAMPLE NO.

K22563

Lab Name: Aquatec, Inc.

Lab Code: AQUAI

Contract: 91082

Case: PCB

SDG: 40145

Phase Type: SOIL

Lab Sample ID: 201220

Phase Weight: 9.9 (g)

Date Received: 10/16/93

Injection Volume: 1.0 (uL)

Date Extracted: 10/21/93

Dilution Factor: 1.0

Date Analyzed: 11/10/93

% Solids: 85.22

Sulfur Clean-up: N (Y/N)

CAS NO.	COMPOUND	CONCENTRATION	
		(ug/Kg)	Q
12674-11-2	Aroclor-1016	60	U
11104-28-2	Aroclor-1221	60	U
11141-16-5	Aroclor-1232	60	U
53469-21-9	Aroclor-1242	27	J
12672-29-6	Aroclor-1248	60	U
11097-69-1	Aroclor-1254	60	U
11096-82-5	Aroclor-1260	60	U

FORM 1
AROCLOR ANALYSIS DATA SHEET

EPA SAMPLE NO.

K22564

Lab Name: Aquatec, Inc.

Lab Code: AQUAI

Contract: 91082

Case: PCB

SDG: 40145

Phase Type: SOIL

Lab Sample ID: 201221

Phase Weight: 10.0 (g)

Date Received: 10/16/93

Injection Volume: 1.0 (uL)

Date Extracted: 10/21/93

Dilution Factor: 1.0

Date Analyzed: 11/10/93

% Solids: 72.97

Sulfur Clean-up: N (Y/N)

CAS NO.	COMPOUND	CONCENTRATION (ug/Kg)	Q
12674-11-2	Aroclor-1016	69	U
11104-28-2	Aroclor-1221	69	U
11141-16-5	Aroclor-1232	69	U
53469-21-9	Aroclor-1242	230	
12672-29-6	Aroclor-1248	69	U
11097-69-1	Aroclor-1254	47	J
11096-82-5	Aroclor-1260	69	U

FORM 1
AROCOR ANALYSIS DATA SHEET

EPA SAMPLE NO.

K22565

Lab Name: Aquatec, Inc.

Lab Code: AQUAI

Contract: 91082

Case: PCB

SDG: 40145

Phase Type: SOIL

Lab Sample ID: 201222

Phase Weight: 10.0 (g)

Date Received: 10/16/93

Injection Volume: 1.0 (uL)

Date Extracted: 10/21/93

Dilution Factor: 1.0

Date Analyzed: 11/10/93

% Solids: 44.06

Sulfur Clean-up: N (Y/N)

CAS NO.	COMPOUND	CONCENTRATION (ug/Kg)	Q
12674-11-2	Aroclor-1016	120	U
11104-28-2	Aroclor-1221	120	U
11141-16-5	Aroclor-1232	120	U
53469-21-9	Aroclor-1242	120	U
12672-29-6	Aroclor-1248	120	U
11097-69-1	Aroclor-1254	120	U
11096-82-5	Aroclor-1260	120	U

FORM 1
AROCLOR ANALYSIS DATA SHEET

EPA SAMPLE NO.

K22566

Lab Name: Aquatec, Inc.

Lab Code: AQUAI

Contract: 91082

Case: PCB

SDG: 40145

Phase Type: SOIL

Lab Sample ID: 201223

Phase Weight: 9.9 (g)

Date Received: 10/16/93

Injection Volume: 1.0 (uL)

Date Extracted: 10/21/93

Dilution Factor: 1.0

Date Analyzed: 11/10/93

% Solids: 89.66

Sulfur Clean-up: N (Y/N)

CAS NO.	COMPOUND	CONCENTRATION (ug/Kg)	Q
12674-11-2	Aroclor-1016	57	U
11104-28-2	Aroclor-1221	57	U
11141-16-5	Aroclor-1232	57	U
53469-21-9	Aroclor-1242	78	
12672-29-6	Aroclor-1248	57	U
11097-69-1	Aroclor-1254	370	
11096-82-5	Aroclor-1260	57	U

FORM 1
AROCLOR ANALYSIS DATA SHEET

EPA SAMPLE NO.

K22567

Lab Name: Aquatec, Inc.

Lab Code: AQUAI

Contract: 91082

Case: PCB

SDG: 40145

Phase Type: SOIL

Lab Sample ID: 201224

Phase Weight: 9.9 (g)

Date Received: 10/16/93

Injection Volume: 1.0 (uL)

Date Extracted: 10/21/93

Dilution Factor: 1.0

Date Analyzed: 11/10/93

% Solids: 84.38

Sulfur Clean-up: N (Y/N)

CAS NO.	COMPOUND	CONCENTRATION (ug/Kg)	Q
12674-11-2	Aroclor-1016	26 GC	↓ U
11104-28-2	Aroclor-1221	60	U
11141-16-5	Aroclor-1232	60	U
53469-21-9	Aroclor-1242	60	U
12672-29-6	Aroclor-1248	60	U
11097-69-1	Aroclor-1254	60	U
11096-82-5	Aroclor-1260	37 GC	↓ U

FORM 1
AROCOR ANALYSIS DATA SHEET

EPA SAMPLE NO.

K22568

Lab Name: Aquatec, Inc.

Lab Code: AQUAI

Contract: 91082

Case: PCB

SDG: 40145

Phase Type: SOIL

Lab Sample ID: 201225

Phase Weight: 10.0 (g)

Date Received: 10/16/93

Injection Volume: 1.0 (uL)

Date Extracted: 10/21/93

Dilution Factor: 1.0

Date Analyzed: 11/10/93

% Solids: 90.76

Sulfur Clean-up: N (Y/N)

CAS NO.	COMPOUND	CONCENTRATION (ug/Kg)	Q
12674-11-2	Aroclor-1016	56	U
11104-28-2	Aroclor-1221	56	U
11141-16-5	Aroclor-1232	56	U
53469-21-9	Aroclor-1242	56	U
12672-29-6	Aroclor-1248	56	U
11097-69-1	Aroclor-1254	56	U
11096-82-5	Aroclor-1260	56	U

FORM 1
AROCOR ANALYSIS DATA SHEET

EPA SAMPLE NO.

K22569

Lab Name: Aquatec, Inc.

Lab Code: AQUAI

Contract: 91082

Case: PCB

SDG: 40145

Phase Type: SOIL

Lab Sample ID: 201226

Phase Weight: 10.0 (g)

Date Received: 10/18/93

Injection Volume: 1.0 (uL)

Date Extracted: 10/21/93

Dilution Factor: 1.0

Date Analyzed: 11/11/93

% Solids: 84.29

Sulfur Clean-up: N (Y/N)

CAS NO.	COMPOUND	CONCENTRATION (ug/Kg)	Q
12674-11-2	Aroclor-1016	60	U
11104-28-2	Aroclor-1221	60	U
11141-16-5	Aroclor-1232	60	U
53469-21-9	Aroclor-1242	60	U
12672-29-6	Aroclor-1248	60	U
11097-69-1	Aroclor-1254	60	U
11096-82-5	Aroclor-1260	60	U

FORM 1
AROCOR ANALYSIS DATA SHEET

EPA SAMPLE NO.

K22570

Lab Name: Aquatec, Inc.

Lab Code: AQUAI

Contract: 91082

Case: PCB

SDG: 40145

Phase Type: SOIL

Lab Sample ID: 201227

Phase Weight: 10.0 (g)

Date Received: 10/16/93

Injection Volume: 1.0 (uL)

Date Extracted: 10/21/93

Dilution Factor: 1.0

Date Analyzed: 11/09/93

% Solids: 85.34

Sulfur Clean-up: N (Y/N)

CAS NO.	COMPOUND	CONCENTRATION (ug/Kg)	Q
12674-11-2	Aroclor-1016	59	U
11104-28-2	Aroclor-1221	59	U
11141-16-5	Aroclor-1232	59	U
53469-21-9	Aroclor-1242	59	U
12672-29-6	Aroclor-1248	59	U
11097-69-1	Aroclor-1254	59	U
11096-82-5	Aroclor-1260	59	U

FORM 1
AROCOR ANALYSIS DATA SHEET

EPA SAMPLE NO.

K22571

Lab Name: Aquatec, Inc.

Lab Code: AQUAI

Contract: 91082

Case: PCB

SDG: 40145

Phase Type: SOIL

Lab Sample ID: 201228

Phase Weight: 10.0 (g)

Date Received: 10/16/93

Injection Volume: 1.0 (uL)

Date Fxtracted: 10/21/93

Dilution Factor: 10.0

Date Analyzed: 11/11/93

% Solids: 71.86

Sulfur Clean-up: N (Y/N)

CAS NO.	COMPOUND	CONCENTRATION (ug/Kg)	Q
12674-11-2	Aroclor-1016	700	U
11104-28-2	Aroclor-1221	700	U
11141-16-5	Aroclor-1232	700	U
53469-21-9	Aroclor-1242	700	U
12672-29-6	Aroclor-1248	5500	
11097-69-1	Aroclor-1254	700	U
11096-82-5	Aroclor-1260	570	J

FORM 1
AROCOR ANALYSIS DATA SHEET

EPA SAMPLE NO.

K22572

Lab Name: Aquatec, Inc.

Lab Code: AQUAI

Contract: 91082

Case: PCB

SDG: 40145

Phase Type: SOIL

Lab Sample ID: 201229

Phase Weight: 10.0 (g)

Date Received: 10/16/93

Injection Volume: 1.0 (uL)

Date Extracted: 10/21/93

Dilution Factor: 1.0

Date Analyzed: 11/11/93

% Solids: 68.05

Sulfur Clean-up: N (Y/N)

CAS NO.	COMPOUND	CONCENTRATION (ug/Kg)	Q
12674-11-2	Aroclor-1016	74	J
11104-28-2	Aroclor-1221	74	U
11141-16-5	Aroclor-1232	74	U
53469-21-9	Aroclor-1242	74	U
12672-29-6	Aroclor-1248	160	
11097-69-1	Aroclor-1254	81	
11096-82-5	Aroclor-1260	74	U

FORM 1
AROCOR ANALYSIS DATA SHEET

EPA SAMPLE NO.

K22573

Lab Name: Aquatec, Inc.

Lab Code: AQUAI

Contract: 91082

Case: PCB

SDG: 40145

Phase Type: SOIL

Lab Sample ID: 201230

Phase Weight: 10.1 (g)

Date Received: 10/16/93

Injection Volume: 1.0 (uL)

Date Extracted: 10/21/93

Dilution Factor: 1.0

Date Analyzed: 11/11/93

% Solids: 42.48

Sulfur Clean-up: N (Y/N)

CAS NO.	COMPOUND	CONCENTRATION (ug/Kg)	Q
12674-11-2	Aroclor-1016	120	U
11104-28-2	Aroclor-1221	120	U
11141-16-5	Aroclor-1232	120	U
53469-21-9	Aroclor-1242	120	U
12672-29-6	Aroclor-1248	120	U
11097-69-1	Aroclor-1254	120	U
11096-82-5	Aroclor-1260	120	U

**FORM 1
AROCOR ANALYSIS DATA SHEET**

EPA SAMPLE NO.

K22574

Lab Name: Aquatec, Inc.

Lab Code: AQUAI

Contract: 91082

Case: PCB

SDG: 40145

Phase Type: SOIL

Lab Sample ID: 201231

Phase Weight: 9.9 (g)

Date Received: 10/16/93

Injection Volume: 1.0 (uL)

Date Extracted: 10/21/93

Dilution Factor: 1.0

Date Analyzed: 11/11/93

% Solids: 81.57

Sulfur Clean-up: N (Y/N)

CAS NO.	COMPOUND	CONCENTRATION (ug/Kg)	Q
12674-11-2	Aroclor-1016	62	U
11104-28-2	Aroclor-1221	62	U
11141-16-5	Aroclor-1232	62	U
53469-21-9	Aroclor-1242	62	U
12672-29-6	Aroclor-1248	31.62	U
11097-69-1	Aroclor-1254	62	U
11096-82-5	Aroclor-1260	62	U

FORM 1
AROCOR ANALYSIS DATA SHEET

EPA SAMPLE NO.

K22575

Lab Name: Aquatec, Inc.

Lab Code: AQUAI

Contract: 91082

Case: PCB

SDG: 40145

Phase Type: SOIL

Lab Sample ID: 201232

Phase Weight: 10.0 (g)

Date Received: 10/16/93

Injection Volume: 1.0 (uL)

Date Extracted: 10/21/93

Dilution Factor: 2.0

Date Analyzed: 11/09/93

% Solids: 68.43

Sulfur Clean-up: N (Y/N)

CAS NO.	COMPOUND	CONCENTRATION (ug/Kg)	Q
12674-11-2	Aroclor-1016	150	U
11104-28-2	Aroclor-1221	150	U
11141-16-5	Aroclor-1232	150	U
53469-21-9	Aroclor-1242	720	
12672-29-6	Aroclor-1248	150	U
11097-69-1	Aroclor-1254	730	
11096-82-5	Aroclor-1260	150	U

FORM 1
AROCOR ANALYSIS DATA SHEET

EPA SAMPLE NO.

K22576

Lab Name: Aquatec, Inc.

Lab Code: AQUAI

Contract: 91082

Case: PCB

SDG: 40145

Phase Type: SOIL

Lab Sample ID: 201233

Phase Weight: 10.0 (g)

Date Received: 10/16/93

Injection Volume: 1.0 (uL)

Date Extracted: 10/21/93

Dilution Factor: 1.0

Date Analyzed: 11/11/93

% Solids: 82.20

Sulfur Clean-up: N (Y/N)

CAS NO.	COMPOUND	CONCENTRATION (ug/Kg)	Q
12674-11-2	Aroclor-1016	61	U
11104-28-2	Aroclor-1221	61	U
11141-16-5	Aroclor-1232	61	U
53469-21-9	Aroclor-1242	61	U
12672-29-6	Aroclor-1248	61	U
11097-69-1	Aroclor-1254	61	U
11096-82-5	Aroclor-1260	61	U

FORM 1
AROCOR ANALYSIS DATA SHEET

EPA SAMPLE NO.

K22577

Lab Name: Aquatec, Inc.

Lab Code: AQUAI

Contract: 91082

Case: PCB

SDG: 40145

Phase Type: SOIL

Lab Sample ID: 201234

Phase Weight: 10.0 (g)

Date Received: 10/16/93

Injection Volume: 1.0 (uL)

Date Extracted: 10/21/93

Dilution Factor: 2.0

Date Analyzed: 11/09/93

% Solids: 62.36

Sulfur Clean-up: N (Y/N)

CAS NO.	COMPOUND	CONCENTRATION (ug/Kg)	Q
12674-11-2	Aroclor-1016	170	U
11104-28-2	Aroclor-1221	170	U
11141-16-5	Aroclor-1232	170	U
53469-21-9	Aroclor-1242	170	U
12672-29-6	Aroclor-1248	680 200	
11097-69-1	Aroclor-1254	170 370	X
11096-82-5	Aroclor-1260	230 95	

FORM 1
AROCOR ANALYSIS DATA SHEET

EPA SAMPLE NO.

K22578

Lab Name: Aquatec, Inc.

Lab Code: AQUAI

Contract: 91082

Case: PCB

SDG: 40145

Phase Type: SOIL

Lab Sample ID: 201235

Phase Weight: 9.9 (g)

Date Received: 10/16/93

Injection Volume: 1.0 (uL)

Date Extracted: 10/21/93

Dilution Factor: 1.0

Date Analyzed: 11/11/93

% Solids: 79.22

Sulfur Clean-up: N (Y/N)

CAS NO.	COMPOUND	CONCENTRATION (ug/Kg)	Q
12674-11-2	Aroclor-1016	64	U
11104-28-2	Aroclor-1221	64	U
11141-16-5	Aroclor-1232	64	U
53469-21-9	Aroclor-1242	64	U
12672-29-6	Aroclor-1248	64	U
11097-69-1	Aroclor-1254	64	U
11096-82-5	Aroclor-1260	64	U

FORM 1
AROCOR ANALYSIS DATA SHEET

EPA SAMPLE NO.

K22581

Lab Name: Aquatec, Inc.

Lab Code: AQUAI

Contract: 91082

Case: PCB

SDG: 40145

Phase Type: SOIL

Lab Sample ID: 201236

Phase Weight: 9.9 (g)

Date Received: 10/16/93

Injection Volume: 1.0 (uL)

Date Extracted: 10/21/93

Dilution Factor: 1.0

Date Analyzed: 11/09/93

% Solids: 77.92

Sulfur Clean-up: N (Y/N)

CAS NO.	COMPOUND	CONCENTRATION (ug/Kg)	Q
12674-11-2	Aroclor-1016	65	U
11104-28-2	Aroclor-1221	65	U
11141-16-5	Aroclor-1232	65	U
53469-21-9	Aroclor-1242	65	U
12672-29-6	Aroclor-1248	65	U
11097-69-1	Aroclor-1254	65	U
11096-82-5	Aroclor-1260	65	U

**DATA REVIEW FOR
ALLIED PAPER, INC./PORTAGE CREEK/KALAMAZOO RIVER
SUPERFUND SITE**

**SDG# 40146
PCB ANALYSES**

GEOSTATISTICAL PILOT STUDY

Analyses performed by:

**Aquatec, Inc.
Colchester, Vermont**

Review performed by:

**Blasland & Bouck Engineers, P.C.
Syracuse, New York**

Summary

The following is an assessment of the PCB data package for SDG # 40146 for the Geostatistical Pilot Study sampling of river sediments from the Allied Paper, Inc./Portage Creek/Kalamazoo River Superfund Site. Included with this assessment are the data review check sheets used in the review of the package and corrected sample results. Analyses were performed on the following samples:

[illegible]

Introduction

Analyses were performed according to the USEPA SW-846 method 8081, modified for PCB only analysis.

The data review process is intended to evaluate the data on a technical basis. It is assumed that the data package represents the best efforts of the laboratory and had already been subjected to adequate and sufficient quality review prior to submission.

During the review process, laboratory qualified and unqualified data are verified against the supporting documentation. Based on this evaluation, qualifier codes may be added, deleted, or modified by the data reviewer. Results are qualified with the following codes in accordance with National Functional Guidelines:

- U The compound was analyzed for but not detected. The associated value is the compound quantitation limit.
- J The compound was positively identified; however, the associated numerical value is an estimated concentration only.
- B The compound has been found in the sample as well as its associated blank, its presence in the sample may be suspect.
- N The analysis indicates the presence of a compound for which there is presumptive evidence to make a tentative identification.
- JN The analysis indicates the presence of a compound for which there is presumptive evidence to make a tentative identification. The associated numerical value is an estimated concentration only.
- E The compound was quantitated above the calibration range.
- D Concentration is based on a diluted sample analysis.
- UJ The compound was not detected above the reported sample quantitation limit. However, the reported limit is approximate and may or may not represent the actual limit of quantitation.
- R The sample results are rejected.

Two facts should be noted by all data users. First, the "R" flag means that the associated value is unusable. In other words, due to significant QC problems, the analysis is invalid and provides no information as to whether the compound is present or not. "R" values should not appear on data tables because they cannot be relied upon, even as a last resort. The second fact to keep in mind is that no compound concentration, even if it has passed all QC test, is guaranteed to be accurate. Strict QC serves to increase confidence in data but any value potentially contains error.

The data presented in the package has been derived using a procedure developed by Aquatec, Inc. in an attempt to improve the analytical process of calibration, identification, and quantitation of PCBs as Aroclors. Key components of this procedure include:

Calibration

The response function of the electron capture detector is inherently non-linear, and while significant linearization is achieved for this detector by electronic means, some non-linearity remains. Power function linearization is used to "straighten the curve" and allow the use of response factors for calibration purposes.

During the initial calibration a response factor is calculated for each peak in the individual Aroclors.

A weighted response factor calculation has been used to adjust for non-linearity at the low end of the calibration curve.

Identification

Peak retention times are relative. Retention times are in set windows relative to the time markers DCB and TCMX. Time markers adjust for minor variations in column flow or instrument condition and allow the use of very tight windows which minimizes the number of both false positive and false negative peak identifications.

The determination of "which Aroclor or mixture of Aroclors will produce a chromatogram most similar to that of the residue" is made by expressing the unknown sample chromatogram as a linear combination of the Aroclors. The "most similar" Aroclor or mixture of Aroclors is determined by using a least squares minimization of the difference between the unknown chromatogram and the linear combination of Aroclors. This is similar to the procedure presented by L.E. Slivon, P.M. Schumacher and A. Alford-Stevens for the determination of Aroclor composition from GC/MS level of chlorination results.

Identification/quantitation of Aroclors in samples is based on the combined response of two columns, typically RTX-5 and RTX-35. The pooling of response combines the unique qualities of both columns to derive a more defined Aroclor pattern which is less likely to be affected by interferents. Identification/quantitation data for the individual columns is provided in the package and can be used as a check on the combined column results.

Data Assessment

1. Holding Time

The specified holding times for PCB analyses on soil samples is 10 days from date of sample receipt to extraction and 40 days from extraction to analysis. No deviations from these holding times were noted.

2. Blank Contamination

Quality assurance blanks, i.e., method, field or rinse blanks, are prepared to identify any contamination which may have been introduced in to the samples during sample preparation or field activity. Method blanks measure laboratory contamination. Field and rinse blanks measure contamination of samples during field operations.

No target compounds were detected in the method blanks, rinse blanks, or instrument blanks.

3. System Performance

The system performance was acceptable for both columns.

4. Calibration

Satisfactory instrument calibration is established to insure that the instrument is capable of producing acceptable quantitative data. An initial calibration demonstrates that the instrument is capable of giving acceptable performance at the beginning of an experimental sequence. The continuing calibration verifies that the instrument is giving satisfactory daily performance.

4.1 Initial Calibration

The method allows a maximum RSD of 20%. The %RSD was within acceptable limits for all Aroclors.

4.2 Continuing Calibration

A maximum %D of 15 is allowed. All continuing calibrations were within the specified limits.

5. Surrogates / System Monitoring Compounds

All samples to be analyzed for organic compounds are spiked with surrogate compounds prior to sample preparation to evaluate overall laboratory performance and efficiency of the analytical technique.

Recoveries were low for all surrogates in sample K22580. All data for this samples have been qualified as estimated based on the recoveries. All other surrogate recoveries were within acceptable limits.

6. Compound Identification

The determination of Aroclor presence is made by expressing the unknown sample chromatogram as a linear combination of the Aroclors. The most similar Aroclor or mixture of Aroclors is determined by using a least squares minimization of the difference between the unknown chromatogram and the linear combination of Aroclors.

Identification/quantitation of Aroclors is based on the combined response of the RTX-5 and RTX-35 columns. Identification/quantitation data for the individual columns is provided in the package and has been used as a check on the combined column results.

A review of the sample chromatograms indicate that the Aroclors have been correctly identified/quantitated for all samples.

The quantitated concentration between the combined and both individual columns were within acceptable limits for all samples.

7. Matrix Spike/Matrix Spike Duplicate

Matrix spike and matrix spike duplicate data are used to assess the precision and accuracy of the analytical method.

No matrix spike or matrix spike duplicate was included in this data set.

8. Field Duplicates

Results for duplicate samples are summarized below:

Sample	Result	Duplicate Sample	Result	RPD
K22579	ND	K22580	ND	--

The samples replicate through non-detection.

9. System Performance and Overall Assessment

Overall system performance was acceptable. Other than those deviations specifically mentioned in this review, the overall data quality is within the guidelines listed in the analytical method.